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*Annual report of the secretary of  
the Connecticut Board of ...*

Connecticut. State Board of Agriculture

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HON. SIMEON E. BALDWIN

PRESIDENT

(New Haven County)









**State of Connecticut**  
**PUBLIC DOCUMENT No. 19**

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**FORTY-SIXTH ANNUAL REPORT**  
**OF THE**  
**SECRETARY**  
**OF THE**  
**Connecticut State Board of Agriculture**

**1913**

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***PRINTED BY ORDER OF THE LEGISLATURE***

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**1914**

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THE BOARD OF CONTROL**



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Willimantic, Conn**

**STATE OF CONNECTICUT**

**BOARD OF AGRICULTURE**

**ROOM 62, CAPITOL.**

**TO HIS EXCELLENCY**

**SIMEON E. BALDWIN,**

**Governor of Connecticut**

**Sir:—**

In accordance with the provisions of the statute I have the honor, as Secretary of the State Board of Agriculture, to submit herewith the Report of the Board for the year ending December 31, 1913.

Very respectfully yours,

**Leonard Holmes Healey,**

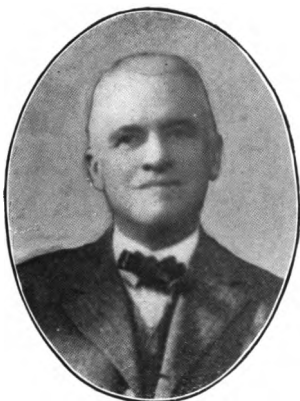
**Secretary.**

**Hartford, February 1, 1914.**

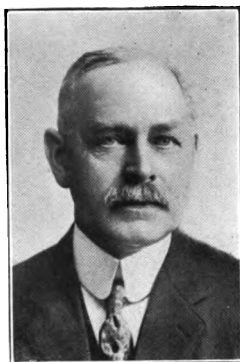


**STATE OF CONNECTICUT  
BOARD OF AGRICULTURE**

**OFFICERS**



**HON. WILSON H. LEE**  
OF ORANGE  
**VICE-PRESIDENT**  
(New Haven County)



**CHARLES A. THOMPSON**  
OF MELROSE  
**TREASURER**  
(Tolland County)



**LEONARD H. HEALY**  
OF WOODSTOCK  
**SECRETARY**  
(Windham County)  
Appointed by Board







# STATE OF CONNECTICUT BOARD OF AGRICULTURE

ORGANIZED 1866.

RE-ORGANIZED 1907.

## 1913

His Excellency, SIMEON E. BALDWIN, *ex officio*.

MEMBERS APPOINTED BY THE GOVERNOR AND SENATE.

	Term Expires
C. E. Beach, . . . . . West Hartford, . . . . .	July 1, 1917
Karmi Kimberly, . . . . . Torrington, . . . . .	July 1, 1917
Wilson H. Lee, . . . . . Orange, . . . . .	July 1, 1915
W. C. Sanford, . . . . . Redding Ridge, . . . . .	July 1, 1915
J. W. Toumey, . . . . . New Haven, . . . . .	July 1, 1917
	459 Prospect Street

APPOINTED BY THE GENERAL ASSEMBLY.

Hartford County, . . . . .	N. H. Brewer, Hockanum, . . . . .	1917
New Haven County, . . . . .	Clifford I. Stoddard, Woodbridge, . . . . .	1917
	865 Chapel St., New Haven, P. O. Box 189	
New London County, . . . . .	Fernando Wheeler, Stonington, . . . . .	1917
Fairfield County, . . . . .	J. Arthur Sherwood, Easton, . . . . .	1917
	Post Office, Long Hill, R. D. 6	
Windham County, . . . . .	Everett E. Brown, Pomfret Centre . . . . .	1915
Litchfield County, . . . . .	Richard E. Dodge, Washington, . . . . .	1915
Middlesex County, . . . . .	W. L. Davis, Durham Center, . . . . .	1915
Tolland County, . . . . .	Chas. A. Thompson, Melrose. . . . .	1915

### OFFICERS OF THE BOARD

Governor Simeon E. Baldwin, *President ex officio*

Wilson H. Lee, . . . . .	Orange, . . . . .	<i>Vice President</i>
Leonard H. Healey, . . . . .	North Woodstock, . . . . .	<i>Secretary</i>
Chas. A. Thompson, . . . . .	Melrose, . . . . .	<i>Treasurer</i>
Dr. E. H. Jenkins, . . . . .	New Haven, . . . . .	<i>Chemist</i>
Dr. C. P. Clinton, . . . . .	New Haven. . . . .	<i>Botanist</i>
Dr. W. E. Britton, . . . . .	New Haven, . . . . .	<i>Entomologist</i>
N. S. Platt, . . . . .	New Haven, . . . . .	<i>Pomologist</i>

EXECUTIVE COMMITTEE AND AUDITORS

R. E. Dodge,

N. H. Brewer,

J. W. Toumey



## CONNECTICUT

### STATE BOARD OF AGRICULTURE

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The Connecticut State Board of Agriculture was established by act of Legislature, holden in New Haven on the first day of May, 1866. Said act provided that the Board should consist of the Governor, one person appointed from each county by the incorporated agricultural societies in each county, receiving an annual bounty from the State, and four other persons appointed by the Governor, with the advice and consent of the Senate.

This Board was empowered to receive and hold donations or bequests for promoting agricultural education and the general interests of husbandry; to prescribe forms for and regulate the returns required from agricultural societies.

The Secretary was required by statute to visit different sections of the State annually, for the purpose of inquiring into the methods and wants of practical husbandry, ascertaining the adaptation of agricultural products to soil, climate, and markets, encouraging the establishment of agricultural libraries and reading rooms, and disseminating agricultural information by lectures or otherwise.

For the purpose of preventing the spread of contagious diseases among domestic animals, the Board could prohibit the introduction of any such animals into the State, and could quarantine any infected animal in the State. The Board could also appoint three commissioners on diseases of domestic animals, having all of the powers of the Board in regard thereto.

By act of the General Assembly of 1897, the Board was reorganized to consist of one member from each county of

the State, elected by the Senators and Representatives of said counties respectively, and the power to investigate the contagious diseases of domestic animals was given to one commissioner, appointed by the Governor, with the advice and consent of the Senate.

The Legislature of 1899 amended this act by providing for the appointment of one member from each congressional district by the Governor, making the Board to consist of twelve members as formerly, with the Governor as president, *ex officio*.

The legislature of 1913, again amended this act; to comply with the redistricting of the State, providing for an appointment by the Governor of one member from each of the five congressional districts so that the Board now consists of 13 members with the Governor as president, *Ex-Officio*.

Hon. Theodore S. Gold of West Cornwall was elected the first secretary in 1866, and was re-elected each year until July 1, 1901, when he was succeeded by Col. James F. Brown of North Stonington, who held the office until July 1, 1909, when he was succeeded by I. C. Fanton of Westport, who held the office until July 1, 1911, when he was succeeded by Leonard H. Healey of North Woodstock, the present secretary.

## AGRICULTURE.

Agriculture dates back as far as ancient records. These records, which have come down to us from thousands of years before Christ, record the fact that Egypt was a land so rich and fertile that its dense population was more than supplied with corn produced within its own borders. Even in those times its farmers were conversant with rules and maxims that make for successful agriculture.

In this country agriculture was commenced by clearing the land and growing the crops necessary for the sustenance of the settlers. In those earlier years land was so plentiful that it was much easier to "move on" than to strive for the retention of its fertility. There was no incentive for retention

of soil fertility for rotation of crops and their careful cultivation, scarcely a motive to seek new ideas in regard to agricultural practices. A deep-seated prejudice among the masses was in evidence against book learning and all scientific teaching, as it related to agriculture.

During the last century, however, leaders of thought and men prominent in agriculture came to see that for many years, at least, agriculture must be one of the country's principal industries. Thus it was that a movement was begun to improve agricultural conditions. Departments of agriculture experiment stations, agricultural colleges, fairs, and boards of agriculture were organized, these all, primarily to foster the various farm interests. Farm interests in the United States alone now involve a capital of nearly twenty-eight billion dollars and employ in their workings ten and one-half million persons. These figures are large, but they soon must be doubled, to furnish our rapidly increasing population. It not only means more acres cultivated, but a more intensive cultivation of those acres now producing crops.

The changed conditions of farming must be met. The virgin fertility of the soil has been so reduced that fertilizers and crop rotation must be intelligently used. Our dairy cows must produce not only milk of a certain percentage of butter fat but they must also produce a certain number of thousand pounds each year, to give a profit to the producer. Many barns in our own and other States might be filled with high-grade cows that would double their owners' profits.

Selection, breeding, and the profitable production of farm crops necessitate down-to-date information along these various lines.

The raising of alfalfa and corn is a science by itself. Fruit raising, once profitable without care now requires a scientific management. The professions of law, medicine and the ministry are not the only ones that can make use of a college education. The practice of agriculture offers as great a field for scientific study and its practice as any other. To raise 100 bushels of potatoes to the acre; to maintain and pay the "up-keep" of cows that produce 3,500 pounds of milk each

year; to raise fruit that is barely saleable,—all are farm drudgeries. Producing 300 bushels of potatoes to the acre; keeping cows that make 7,000 pounds of milk per year; and raising high grade fruit is a science applied to farming. Many of our farmers are actually doing this; why are not more?

## CONNECTICUT.

### SURFACE, CLIMATE, AND SOIL.

Connecticut ranks forty-sixth in area and thirty-first in population among the States. The greater part of the State of Connecticut consists of rolling, mountainous highlands, interspersed by innumerable small valleys, and bordered toward the coast line by a low, rolling plateau.

The climate is like that of the North Atlantic States, the four seasons well defined, and generally an abundant rainfall for all crops.

### PRINCIPAL CROPS.

The leading field crops of the State in the order of their importance as judged by value, are: hay and forage, \$7,225,000; tobacco, \$4,416,000; potatoes, \$1,882,000; corn, \$1,694,000; and oats, \$161,000. By far the most important crop of the State in acreage and value is hay and forage, it being almost eight times as great in extent as corn, the second crop in acreage, and valued at more than 60 per cent. above tobacco, the second crop in value. Potatoes, with an acreage of about 50 per cent. above that of tobacco, show a value less than half as great. Corn, with an acreage a little more than double that of potatoes, is reported at 10 per cent. less in value, while oats fall in acreage and value respectively, to one-fifth and one-tenth of that of corn.

From the Last Census We Glean These Facts.

Corn gave an average yield of 48 bushels to the acre, worth \$32.13; oats 26.8 bushels, valued at \$15.79; rye and buckwheat each yielded over 18 bushels an acre, worth \$16.28 each; hay and forage averaged 1.37 tons per acre, or \$18; potatoes 112 bushels an acre, or \$78.56; and tobacco 1,752.3 pounds to the acre, worth \$275.27.

Both fruit growing and truck gardening are very profitable industries in Connecticut, and yield handsome returns. It is a thickly settled State, and the gardener is always close to local markets, not to mention the always eager market of New York City, within a very few hours by rail.

### STOCK RAISING.

The values of some of the various kinds of domestic animals and of poultry and bees, as reported by the census of 1910 were: cattle, \$6,730,287; horses and colts, \$5,739,400; swine, \$472,741; sheep and lambs, \$112,349; poultry, \$988,653; bees, \$41,839. The total value of all domestic animals, poultry, and bees in 1910 was \$14,163,902. During the 10-year period, 1900-1910, domestic animals, poultry, and bees combined increased in value \$3,232,000 or 29.6 per cent.

Of all farms 33 per cent. report swine the average number being nearly 6 per farm reporting.

The increase reported in the number of fowls on Connecticut farms during the past decade amounts to 15.2 per cent. while the value increased from \$644,000 to \$989,000, or 53.5 per cent. The number of farms reporting poultry increased only from 23,064 to 23,214, but the average number of fowls per farm reporting increased from 48 to 55.

Of all the farms in the State 79.5 per cent. report cattle, 77.7 per cent. report "dairy cows," and only 18.8 per cent. "other cows." Only 471 farms have cattle without having dairy cows. The average value of dairy cows increased from \$33.71 to \$41.50 during the 10-year period, 1900-1910. The farms reporting dairy cows show an average of nearly 6 per farm.

### PRICES OF FARMS AND INDUCEMENTS TO SETTLERS.

Over two-thirds of the State's total land area is in farms. In each county of the State from 60 to 80 per cent. of all land is in farms. New London County shows the highest proportion, 75.5 per cent. of land in farms, while Middlesex



County shows the smallest proportion, 63.4 per cent. The four northern counties show higher proportions of farm land than do the southern counties, New London excepted.

The average value per acre of farm land for the whole State is \$33.03. In the eastern part of the state the value of farm land is from \$10 to \$25 per acre, while in Fairfield County, which is in the extreme southwestern part of the State, the average value is \$75 to \$100 per acre, or over two and one-half times as high as for the State as a whole. New Haven and Hartford Counties, located in the central part of the State, show an average value for farm land of from \$25 to \$50 per acre. The average value of a farm with its equipment in 1900 was \$4,205, while 10 years later it was \$5,944. The average value of land alone rose from \$22.68 per acre in 1900 to \$33.03 in 1910, this advance being accompanied by increases in the average value per farm of implements and machinery and of live stock.

### GENERAL AND SPECIAL INDUCEMENTS.

The nearness to markets makes dairying, and especially the production of milk, one of the leading industries of the State; and the adaptability of Connecticut's soil and climate to fruit raising makes this a profitable and growing occupation. The opportunities for those desiring to engage in dairying, poultry raising, or fruit culture are as good in Connecticut as in any other State in the Union; yet here as elsewhere, a little capital, push, and energy are needed to insure success.

Connecticut's public schools, as well as her colleges, are noteworthy, and are well distributed through the rural districts. The State Board of Agriculture stands ready to aid and advise any who desire information in regard to the natural advantages and resources of the State. To assist and aid in the advancement of our State's agriculture and to create this desire in the minds of our many farmers are the endeavors of our State Board of Agriculture. With this thought foremost the Board has given of its energies along these lines.

## FARM CIRCULAR.

Capitol, Hartford, Conn., Sept. 11, 1913.

## Farms for Sale in Connecticut.

Eighteen months ago a bulletin describing fifty farms "For Sale" was prepared by this Board. Every farm listed in the bulletin was soon disposed of to purchasers who in nearly every instance have made desirable citizens.

The success attending the publishing of this bulletin was such that one year ago a much larger bulletin was published. This second edition has become exhausted and inquiries have shown that most of the places listed in the second publication have also found buyers. It is now our purpose to issue a much larger and more comprehensive bulletin than those heretofore attempted. It is our aim not only to list and describe "Farms for Sale," but to give, by counties, such general and special information in regard to the agricultural resources of the several counties as will help the prospective buyer.

Though we have no "abandoned farms" in Connecticut, in nearly every rural community, however, there are farms for sale at very reasonable prices, considering the buildings and other improvements upon them. To meet the wants of the hundreds who wish to secure Connecticut homes, and in the interest of those who have farms "to sell or to let," as well as for the common welfare, the Board of Agriculture is preparing a new bulletin on which we ask your co-operation. There is no expense whatever to the person having the farm listed, and no expense or commission to the Board if a sale is made. If, however, the owner desires a cut of his buildings to appear in the bulletin with a description of the farm, a photograph must accompany the description, and the owner must pay the cost of making the cut which will not exceed \$3.00. The bulletin will be widely distributed and a copy will be sent out to all inquiries about farms which may come to this Board, to the Agricultural College or to the Agricultural Experiment Stations.

To aid in preparing a list that shall be accurate, fairly complete, and reliable, this circular is sent to town officials,

to the agricultural societies, farmers' clubs, granges, business men's associations, and to a large number of private individuals with the request that the accompanying blanks be filled out and returned to the Board of Agriculture in the enclosed envelope by October 10th, or as soon as possible after receiving blanks.

More blanks will be sent on request. Only one farm should be described on one blank.

No compensation is provided for furnishing this information, but for the welfare of Connecticut's future all are earnestly urged to assist us in making this coming list complete and accurate.

To those who reply to this circular, a bulletin will be mailed as soon as it is published.

Per order of State Board of Agriculture,

LEONARD H. HEALEY, Secretary.

In compliance with the foregoing circular a list of farms and residential properties for sale has been published.

These farms have been catalogued county-wise for easy reference. The "write up" of the county which precedes them is a clear-cut statement of the conditions just as they exist in the several counties.

This book entitled "Connecticut Agriculture" may be obtained upon request at this office.

#### BOYS' CORN CLUB.

The results obtained by the boys who entered the contest work for the year 1912 were very good, and the Board at its annual meeting voted to continue the club work for the year 1913. The Board offered its usual cash prizes and several of the Agricultural Fairs renewed their offer of a trip to Washington to the boy, who made the greatest profit from his acreage. This trip to be given to one boy in each county. Several fertilizer companies, also made liberal offers of cash prizes, if the corn was raised on their make of fertilizer.

Some 60 boys located in as many towns in the State entered the contest, but for one cause or another many of



**SUCCESSFUL CONTESTANTS IN THE BOYS' CORN CLUB CONTEST.**  
Stedman Storrs,      Lafayette J. Robertson,      Merrill L. Healey,      Leslie Geer.



them fell by the way-side. Among those who staid in until the contest was ended, the following were successful in obtaining the following prizes:

Layafette J. Robertson, Jr., of Manchester, won first, Cash \$13.06 from the State Board of Agriculture contest. His score being yield per acre, 26; exhibit, 20; history, 20; profit, 20, total 86. The same boy also won \$150 in Cash prizes offered by the Connecticut State Fair. He also won the \$50 trip to Washington offered by the Connecticut State Fair for Hartford County.

Second prize in the State Board contest, Cash \$12.63 was won by Merrill L. Healey of Woodstock. He also won the \$50 trip to Washington offered by the Woodstock Agricultural Society, to the boy in Windham county, raising the largest number of bushels upon an acre. His score was 82 1-2. This boy also won the \$50 cash prize offered by the C. M. Shay Fertilizer Company of Groton, Conn. This boy had the largest yield per acre, (111 bu. of shelled corn) of any boy in the State. Ewart G. Healey of Woodstock won 3rd, cash \$12.61 from the State Board of Agriculture contest. His score being 82 1-3. He also won the \$15 offered by the Lowell Fertilizer Company of Boston.

Leslie Geer of Hadlyme, won the 4th, cash \$11.70. His score being 77. He also won the \$50 trip to Washington offered by Hon. Samuel Russell of Middletown.

Quite a large club was organized in the town of Mansfield by A. J. Brundage, teacher of Agriculture in that town, and at least a dozen boys entered into it. The one getting the largest yield per acre was Stedman Storrs of Mansfield Center. He received the prize which was offered by the State Board for this special club work and also received the \$50 trip to Washington offered by the Stafford Springs Fair Association.

Considering the dryness of the season, the yields which were obtained by the boys were exceptionally good. The descriptions which were submitted to the Board of the manner in which they planted and cared for their fields are very interesting. The boys, who staid in the contest until the end, deserve much credit.

The Corn Club work for the season of 1914 has been placed in the hands of the Extension Department of the Agricultural College, and we look forward to seeing a large number of boys and girls interested in this line of agriculture the coming season. They have our best wishes for the successful completion of the work which they have undertaken.

The State Board of Agriculture will continue its interest in the work and offers \$25 in cash to the boy producing the greatest number of bushels of shelled corn on his acre or one-half acre. It also offers \$75 in cash to be divided among the four boys whose acre or one-half acre shows the best results as per schedule of points adopted by the Board. In each instance 10 ears of corn must be submitted to the Board at such time and place as they may request.

#### Schedule of Points.

	Points
Greatest yield per acre — — — — —	30
Best exhibit of ten ears — — — — —	20
Best written history of crop — — — — —	20
Best showing of profit on investment — — — — —	30
	<hr/>
	Total, 100

Boys over 14 and under 18 years of age to raise one acre.  
Boys 14 years of age and under to raise one-half acre.

#### FARMERS' INSTITUTES.

The Board have done all their institute work in connection with the advisory Board on Farmers' Institutes, believing that only through this co-operation could we get the most good from the money apportioned to us by the State. We are gratified with the success of the plan. Everything has moved along smoothly and harmoniously. More institutes have been held than in any previous year and at a saving in expense. More people have attended these meetings and a greater interest has been shown in them than at any time during recent years.

We believe that this institute work is doing much good, and is appreciated by the farmers, and others as well.

Thirty-seven institutes were held during the last season and were attended by more than 4000 persons. The total cost to the several Associations was a trifle over \$1,000.

### AGRICULTURAL FAIRS.

The Agricultural fairs which receive assistance from the State are 32 in number. This assistance based on the amount of premiums paid by them, exclusive of speed and amusement, amounted for the fair season of 1913 to \$9,550.00, this exclusive of the State Fair at Berlin which also received \$4,500.00.

In order to receive this assistance reports are made by the officers of the several fairs to the secretary of the Board. These if correctly made are approved and a statement made, of the amount due to the fair association, to the comptroller and an order is drawn by him on the treasurer for the sum due to each fair association.

It is provided by statute law that members of the Board or the secretary shall visit each fair association at the holding of their exhibition and make a report to the Board in regard to all the conditions as they find them. This the Board has done, but believing that better results could be accomplished through a closer relationship of the fair officials and the members of the Board, it was decided to form a Connecticut State Fair Association. For this purpose, the following letter was issued from this office.

### STATE OF CONNECTICUT.

Board of Agriculture.

CAPITOL, Hartford, Conn., Jan. 22, 1914.

My dear Sir:

There will be a meeting of those interested in the formation of the Connecticut State Fair Association at the Old Senate Chamber in the Capitol at Hartford, on Feb. 3rd, at 11.00 A. M.



This association is to be composed of the Secretary and President of each of the several fair associations unless their fair has appointed delegates in their places.

The morning session will be given to the reports of committees, and the election of officers. In the afternoon, commencing at 1.30 P. M. there will be addresses by Hon. H. O. Hadley of Peterboro, N. H. who has been engaged in fair work for many years; also C. E. Hodgkins of North Hampton, Mass., President of the New England Fair Association, and H. T. Hyde of Southbridge, Mass., who is Secretary of the latter named association. Other speakers from our own State will discuss some of the problems of fair management in Connecticut.

Lunch will be served at noon and transportation of the delegates paid by the State Board. Every fair should see to it that it is represented at this meeting either by its Secretary and President, or by appointed delegates. In arranging for the lunch, it is important that we know the number of those who will attend. Kindly inform us at once whether your fair will be represented.

Very sincerely,

LEONARD H. HEALEY, Sec.  
State Board of Agriculture.

In accordance with the foregoing notice, a meeting of the delegates representing thirty of the Agricultural Societies was held in the old Senate Chamber. The meeting was called to order promptly at 11.00 A. M. by Prof. R. E. Dodge, Chairman of the Committee of the Association. The Constitution as proposed by the committee, was presented to the Association. After it had been fully discussed, and amendments offered and adopted, the constitution and by-laws as amended was adopted by those present without a dissenting vote.

The following is the Constitution and by-laws as adopted:

1. This association shall be known as the CONNECTICUT ASSOCIATION OF AGRICULTURAL FAIR DIRECTORS.

The object of this Association shall be to promote interest in, and the efficiency of, State-supported Agricultural Fairs in Connecticut.

2. Any Agricultural Fair Association which receives support from the State of Connecticut may become a member of this Association upon application to the Secretary and the payment of dues for one year as provided in the By-Laws of this Association. Each Society or Fair Association shall be entitled to two delegates to all meetings. The members of the State Board of Agriculture shall be ex-officio members of this Association, but only two delegates from the Board shall have the right to vote.

3. The officers of this Association shall be a President, Vice-President, Secretary and Treasurer, and an Executive Committee to consist of the officers of this Association, and one member from each county in the State of Connecticut. They shall hold their respective offices for one year, or until the election and acceptance of their successors. The President shall be Chairman Ex-Officio.

4. The duties of the officers of this Association shall be such as are usually performed by such officers.

The Executive Committee shall have general supervision over the business of the Association, shall arrange for Annual meetings, and the programs for such meetings, and fill all vacancies that may occur among the officers or the membership of the Executive Committee.

5. Special Committees may be appointed at any time by motion, or resolution to consider and report on any matter that may be assigned to them. Unless otherwise provided, all Committees shall be appointed by the President or President pro-tem.

6. The annual meeting of this Association shall be held on the third Tuesday in February in the city of Hartford at which the officers of this Association, and the Executive Committee shall be elected by ballot. Fifteen delegates shall constitute a quorum at any meeting, and five members at any meeting of the Executive Committee.

7. Annual membership fee shall be five dollars (\$5.00) payable on or before the first day of Feb., of each year, for each Fair Association becoming a member of this Association, and any Association not paying its dues on or before the day of the Annual meeting shall cease to be members of the Association. The Secretary shall give at least 30 days notice of the place at which the annual meeting shall be held, and said notice shall also include notice of dues to be paid by such Societies as have not paid them.

8. Upon the written request of three-fourths of the Executive Committee, the President shall call a special meeting of the Association.

This Constitution may be amended by a two-thirds vote of the delegates present at any regular meeting, due notice thereof having been given in the call for the meeting.

VOTED. That the Chairman appoint a Committee of eight, one from each County, who shall retire and bring in a list of names to serve as the officers of the Association for the Constitutional term of one year.

The Chairman appointed the following Committee:

Hartford,	Daniel Webster.	Berlin
New Haven,	C. P. Stoddard,	Woodbridge
New London,	G. A. Kahan,	Norwich
Fairfield,	J. A. Sherwood,	Easton
Windham,	C. H. Childs,	Woodstock
Litchfield,	Robert Scoville,	Salisbury
Middlesex,	R. S. Bailey,	East Hampton
Tolland,	C. A. Thompson.	Melrose

The Committee retired and brought in the following list of names which they presented as officers:

PRESIDENT, W. H. HALL, of the Stafford Springs Agricultural Association.

Vice-Pres., R. E. Dodge, of the State Board of Agriculture.

Sec. Vice-Pres. W. H. Webster, of the Connecticut State Fair.

Secretary, L. H. Healey of the Woodstock Agricultural Society.

Treasurer, J. G. Schwink, of the Connecticut Dairymen's Association.

## EXECUTIVE COMMITTEE.

County  
ROBERT SCOVILLE, (Salisbury Fair Ass'n) Litchfield  
P. B. LEONARD, (Rockville Fair Association) Tolland  
M. J. FRINK, (Windham Co. Agri. Society) Windham  
J. A. SHERWOOD, (State Board of Agriculture) Fairfield  
H. P. BROOKS, (N. H. Co. Hort. Society) New Haven  
G. H. GELSTON, (E. H. Grange Fair Ass'n) Middlesex  
J. W. STARK, (Lyme Grange Fair) New London  
JOHN L. DOWER, (State Fair Inc.) Hartford

The report of the Committee accepted and adopted.

The following order of business was referred to the Executive Committee with the recommendation that it be adopted as the regular order of business for annual meetings of the Association.

## ORDER OF BUSINESS.

Roll-call of Associations.  
Officers' reports.  
Executive Committee's report.  
Special Committee's report.  
Reading of Communications.  
Unfinished business.  
Election of Officers.  
New Business.

An adjournment was taken to the Dillon Court Hotel at which time a dinner was served by the State Board of Agriculture to the fifty people in attendance. After this part of the program had been disposed of, Chairman, R. E. Dodge, placed the meeting in the hands of the President, W. H. Hall, who, after pleasing introductory remarks, called upon the Hon. H. O. Hadley of Peterboro, New Hampshire, who gave a well received and instructive address upon "What should be the provinces of an Agricultural Fair as to improving the community in the section where it is held."

Following Mr. Hadley's address, the chairman presented C. E. Hodgkins, of North Hampton, Mass., who is President of the New England Fair Association, who gave a talk

upon Fair Management relating to many of its phases. This address was followed by a talk by H. T. Hyde of Southbridge, Mass. Mr. Hyde has long been connected with fair work and it is greatly due to his effort that the Worcester South Agricultural Society has achieved its present high reputation. Mr. Hyde spoke very interestingly, and to the point as to fair management, mentioning several attractions which, in his connection as a fair manager, he had found most successful in catering to the needs and enjoyment of the public.

J. A. Sherwood of Easton, offered a resolution expressing the appreciation of those present of the able and interesting addresses which the several speakers had given.

Meeting adjourned subject to call of the Secretary as per constitution adopted.

The fairs of the State made a decided advance in many of their departments as shown at their last Fall exhibitions, and because of this coming together movement, we expect to see more progress and some features made prominent that will be more directly of a benefit to Agriculture.

#### DYNAMITE DEMONSTRATIONS.

The use of dynamite in connection with successful farm operations, is comparatively a new thing, nevertheless, it is being used a great deal by many of our most progressive farmers. Many of our acres have been made profitable and many more can, and will be made so by its use. For orcharding it is often a most useful adjunct. To impress its usefulness upon our farmers, especially, several demonstrations were arranged for, to be held in different parts of the State. The first was held at the farm home of R. E. Dodge at Washington, Conn., on Monday Oct., 27, 1913. The second demonstration was held at the farm home of J. Arthur Sherwood at Stepney on Oct., 29th. The third was held on the farm of Fernando Wheeler at No. Stonington on Oct., 30th. The fourth on the farm of G. H. Gelston, East Haddam on Oct., 31st. The fifth on the farm of W. S. Warren, Eastford

on Nov., 5th. The sixth and last of the fall series, at Stafford on the farm of F. H. Plumb.

The Board were fortunate in securing the services of G. W. Wilkes of East Haddam as its demonstrator and the Du Pont people contributed the dynamite. More than 1,000 people attended these six meetings. A great deal of interest was manifested and much instruction given to those present, in regard to the use and usefulness of dynamite for the purpose of subsoiling, ditching, blasting and stump pulling, as well as explaining its usefulness in the planting of trees.

Several applications are on file asking for another series of these institutes. This is work the Board can well afford to continue.

### SPRAY CALENDAR.

Such a great interest is now manifested in the growing of orchards and raising of fruit, and because we have received numerous inquiries asking for bulletins on this subject, and especially spraying, we have added to this report what we have termed a "spray calendar." It was prepared, by request of the Board, by Prof. G. P. Clinton, botanist, and W. E. Britton, entomologist, of New Haven Experiment Station staff, to whom we wish to give all credit for its preparation. We trust that it will supply a needed want, and that it can be easily and readily understood. It appears elsewhere in this report, a copy of which can be obtained by addressing the secretary, or a copy of the calendar alone, as may be desired.

### CONCLUSION.

The Board of Agriculture through its membership is ever on the alert to assist or direct any work or effort that may aid in the growth of Connecticut agriculture in its true sense.

Commercial clubs and business concerns of all kinds are taking every step in their power to encourage the farmer to raise better and larger crops. This because the town and city are most interested in the **increased production** because they believe that it will lessen the price of the goods

to the consumer. The town's people seem thus far to only have seen the production side of farm life. As great a question, and the greatest as it relates to the farmer, is the marketing or distribution of the farm products. Every force available is being used to create a sentiment for better production on the farm. The results must necessarily be negative ones unless the disposal of these products is provided for at fairly remunerative prices. One of our Institute workers once said that the first Institute was held when two farmers leaned across the fence and talked to each other.

The "Boom" that has come to Agriculture from the business man is such that the business man and the farmer must needs "lean across the fence" and talk to each other, that a plan helpful to both may be the result of the conference. To accomplish this result the Secretary, at the direction of the Board is planning a series of Institutes or conferences in connection with the Business Men's Association of Winsted, Putnam, Bethel and other places as arrangements may be made.

It is believed that these conferences or get-together meetings will be productive of much good and it is hoped the results of these meetings may be of benefit alike to the consumer and the producer.

The Agricultural College, the Experiment Stations and the several State Agricultural Associations have all worked together, harmoniously, with us. We again wish to record our appreciation of the assistance rendered us in our labors connected with this office by the secretaries of the associations.

The last legislature saw fit to grant our request for an appropriation for office expense. A Stenographer has been in attendance Tuesday, Wednesday, Thursday and Friday of each week.

While it was expected that the Secretary should be at the Capitol each Tuesday the work has increased so as to demand our attention two days every week and some weeks we have been in the office three days. Much of our time at home has also been spent in the work and have many times

found it necessary to get extra stenographic assistance. Requests for information upon various problems of farm life are received by us in every mail. Requests for farm bulletins containing list of farms for sale have been received from every State in the union. Much valuable data has been compiled upon our State's resources. The Board has also been the means of organizing a Connecticut State Alfalfa Grower's Association which we trust will be the means of increasing the interest taken in the growing of Alfalfa.

Each and every member of the Board, as well as the Secretary, desire to see Connecticut maintain the lead which it now holds in Dairying, Fruit raising and poultry husbandry. Also its lead in its production of Hay, Corn and Tobacco. The members of the Board desire to see Connecticut in the foremost rank as an **intensive** agricultural State and will use their best endeavors to see that this is made possible.



# SPRAY CALENDAR FOR CONNECTICUT

BY

G. P. CLINTON, *Botanist*. W. E. BRITTON, *Entomologist*.

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For lack of space we can give only brief directions for the treatment of the worst fungus and insect pests of the plants commonly grown in the State. Frequently the average injury from pests or the benefits from the application are not great enough to warrant treatment. The troubles vary with the season, the character of which we cannot predict, and the grower must decide from his local conditions whether or not he will try to control these enemies of his crops. With some of these troubles, especially fungi, prevention rather than cure is desired. Below are common fungicides and insecticides recommended for use in Connecticut, followed by directions for using them on the different host of plants:

## FUNGICIDES.

## INSECTICIDES.

### Commercial Lime-Sulphur.

Select a good brand of standard strength, guaranteed free from alkalies.

1¼ or 1½ gals. lime-sulphur  
50 gals. - - - water

For use on foliage. Lead arsenate may be added as a poison.

### Self-boiled Lime-Sulphur.

8 lbs. - - - fresh lime  
8 lbs. - - - fine sulphur  
50 gals.- - - water

Start the lime slaking, sift and stir in the sulphur,

1 gal. - - - lime-sulphur  
9 gals. - - - water

Spray on dormant trees to kill San Jose Scale, Pear Psylla, etc.

### Lead Arsenate.

3 to 5 lbs. paste lead arsenate  
(half as much if powdered)  
50 gals. - - - water

Two lbs. powdered may be mixed with 50 lbs. land

**FUNGICIDES.**

with only enough water to cover, and boil from heat of lime for 15 minutes. Then dilute, strain and apply. More satisfactory if made in large quantities. Add lead arsenate for a poison.

**Bordeaux Mixture.****(STRONG)**

4 lbs. - - copper sulphate  
4 lbs. - - - fresh lime.  
50 gals. - - - - water.

**(WEAK)**

1 lb. - - copper sulphate.  
4 lbs. - - - fresh lime.  
50 gals. - - - - water.

Dissolve the copper sulphate in hot water or in a coarse bag suspended in cold water. Slake the lime separately. Dilute each to about 20 gals. Strain the lime into the spray barrel, then add the copper and fill the barrel with water. Stock solutions of each (1 lb. to 1 gal.) may be kept indefinitely. Add lead arsenate for a poison. For use on foliage.

**Ammoniacal Solution Copper Carbonate.**

6 ozs. - copper carbonate.  
3 pints - strong ammonia  
50 gals. - - - - water.

Use just enough ammonia (diluted several

**INSECTICIDES.**

plaster and dusted on moist foliage.

For all leaf-eating insects.

**Paris Green.**

$\frac{1}{4}$  lb. - - - Paris Green  
1 $\frac{1}{4}$  lbs. - - - fresh lime.  
50 gals. - - - - water

The dry poison may be mixed with 50 lbs. land plaster and dusted on moist foliage.

For all leaf-eating insects.

**Hellebore.**

1 oz. - - fresh hellebore  
1 gal. - - - - - water

May also be dusted on moist foliage. For Currant Worms, and other Sawfly larvae.

**Kerosene Emulsion.**

2 gals. - - - - kerosene  
 $\frac{1}{4}$  lb. - - common soap  
1 gal. - - - - - water

Dissolve the soap in hot water, add the kerosene and churn together until a white creamy mass is formed, which thickens on cooling. Dilute nine times before using.

For use on foliage to kill Aphids.

**Miscible Oils.**

4 gals. - - - miscible oil  
50 gals. - - - - water

For use on dormant trees

**FUNGICIDES.**

times) to dissolve the copper carbonate, then dilute to proper quantity.

For use on foliage where no sediment is desired; otherwise Bordeaux is preferable.

**Formalin.**

1 pint (1 lb.) formalin (formaldehyde)  
30 gals. - - - - water

For seed potatoes. Soak for 1½ (one and one-half) hours.

For soil treatment, 1 pint to 12½ gals. water, using 2-3 to 1 gal. to each square foot of soil. Cover for 24 hours, stir soil, and air for 3 or 4 days before seeding, or at least 10 days before setting plants. Manure, if used, should be applied before treatment.

**INSECTICIDES.**

to kill San Jose Scale.

**Common Soap.**

1 lb. - - - laundry soap  
8 gals. - - - - water

Cut soap in thin slices, dissolve in hot water, then add cold water to make right quantity. For use on foliage to kill **Aphids, Red Spider, Thrips, etc.**

**Poisoned Bran Mash.**

1 quart - - wheat bran  
1 teaspoonful white arsenic  
1 " cane molasses

Add water and mix to form a stiff mash and distribute over the field a few days before setting plants. For poison, lead arsenate or Paris green may also be used.

To kill Cutworms.

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**APPLE.**

**General Treatment.** Three applications are advised in most cases: (1) on unfolding leaves just before blossoms open; (2) just after petals drop; (3) Three or four weeks after second. If fungi are bad, use strong Bordeaux for 1st and weak Bordeaux with lead arsenate for 2nd and 3rd; if not bad, commercial lime-sulphur with lead arsenate may be used for all treatments on Baldwin and Greening. In many cases the 1st may be omitted. Usually these sprayings will prevent injury from the common fungi and leaf-eating insects. For **Rust**, thoroughly coat the leaves in May while

cedar apples are ripening. For **San Jose Scale**, spray with strong lime-sulphur or miscible oil just before the leaves appear. For **Aphis**, spray under side of leaves with kerosene emulsion. Examine in May and September and dig out **borers**.

### ASPARAGUS.

**Rust** can hardly be controlled by spraying, even with resin-Bordeaux, and it is seldom practiced. Burning after the plants die may help destroy the spores, though of questionable value. Some varieties like Palmetto, partially resist the disease, and attempts are now being made to breed resistant strains. Cut below ground all shoots as long as the cutting season lasts, to prevent rust developing first stage, and **Beetles** from laying eggs. Later spray with lead arsenate to control beetles.

### BEAN.

**Anthracnose**, the most injurious fungus attacking string beans, carries over in the seed. Good seed free from disease should be chosen. Spraying is not practiced here; to be effective, Bordeaux must be used when plants are two inches high, and repeated at least twice at intervals of about ten days.

**Downy Mildew** attacks Lima beans, causing injury after July 15th, in very wet seasons. Keep the vines coated with Bordeaux after July 15th.

### BLACKBERRY RASPBERRY.

**Crown Gall** infested plants should be destroyed. Do not propagate from diseased plantations or set blackberries, raspberries, grapes, peaches, or plums on land previously infested. **Orange Rust** is perennial in these plants, which should be dug out and burned as soon as detected. Spraying is of little value.

### CABBAGE. CAULIFLOWER.

**Black Rot**, caused by bacteria, occasionally proves serious in this State. It is readily established in the soil and

may become worse each year unless crop rotation is practiced. Obtain seed from healthy crops or treat it with formalin (No. 1) for fifteen minutes to kill germs. Burn all refuse from diseased plants, and plant those varieties like Savoy, Flat Dutch, and Copenhagen Market, which are less affected. **Club Root** may be controlled by liming the soil (80 bushels per acre broadcast) and by sanitary practices. For **Maggot**, place hexagonal disks of tar paper about stems of plants when setting and destroy early all stumps of harvested plants. For **Cabbage Worm**, spray carefully with lead arsenate. For **Aphis**, spray with kerosene emulsion.

#### CELERY.

**Leaf Blight (Rust) and Leaf Spot.** Cover seed bed plants with Bordeaux and repeat treatment in field, using ammoniacal solution copper carbonate late in season to avoid sediment on stems. **Leaf Spot** increases after banking or in storage, when the plants should be dusted with sulphur, a treatment often helpful in the field. **Celery Caterpillar** is best controlled by handpicking.

#### CHERRY PLUM.

**Anthracnose** injures the leaves, causing them to drop. **Brown Rot** causes the fruit to rot at harvest time. Early spraying of the leaves with self-boiled lime-sulphur is advised for the former. For the latter keep the fruit coated after it is half grown. Two to four sprayings are necessary, according to season and variety. With plums, thin the fruit so that it does not touch, and destroy all mummies. **Black Knot** may be controlled by cutting off during winter all infected branches several inches below knots, and burning them. Spraying early in May, June and July with self-boiled lime-sulphur or atomic sulphur (10 to 50) helps to prevent reinfection and spore formation on remaining knots, and is useful in controlling **Anthracnose** and **Brown Rot**. For **San Jose Scale**, spray dormant trees with lime-sulphur. For **Curculio**, jar the trees each morning for six weeks after blooming, catch the beetles on sheets and destroy them.

## CORN.

**Smut.** Fresh manure on the land furnishes a place for spore germination and the formation of aerial spores which are blown to the young tissues, especially infecting those mutilated in suckering or detasseling. Remove and burn the smut balls. **White grubs** often injure corn by eating the roots. Corn should not be planted on sod ground. Crop rotation, late fall plowing, and thorough pulverizing with a disk harrow are recommended. For **Cutworms**, see tobacco.

## CUCUMBER. MUSKMELON.

**Leaf Blight and Downy Mildew** may be controlled in normal seasons by spraying with Bordeaux, from July 15 until the end of the season, requiring four or five treatments ten to fourteen days apart. In very wet seasons it is a question if spraying for melons pays. For **Striped Beetle**, spray or dust the young plants with lead arsenate. For **Aphis**, underspray the leaves with kerosene emulsion; place tobacco stems around plants.

## CURRANT. GOOSEBERRY.

For **Anthracnose**, etc., spray unfolding leaves with Bordeaux, repeating two or three times, 10 to 14 days apart. Spray once after fruiting in bad seasons. Avoid European varieties of gooseberry, which are subject to mildew. **Cur-rant Worm** may be controlled by spraying or dusting with hellebore or lead arsenate. Spray dormant bushes with lime-sulphur to kill **San Jose Scale**.

## GRAPES.

**Black Rot** is serious on some varieties and often requires more than one season to get it under control. Spray with Bordeaux as soon as the second or third leaf appears, again just after blossoming, and repeat two or three times 10 to 14 days apart, preferably just before a rain. Destroy all mummies in autumn. For **Leaf Hopper**, spray under surface of foliage with kerosene emulsion. For **Berry Worm**, bag the clusters soon after the fruit sets.

## ONION.

**Smut** remains in the soil at least 13 years, so infested fields should be avoided. A mixture of sulphur 100 lbs., and air-slaked lime (50 lbs. per acre) applied in drills is useful; also formalin (1 to 100) applied by the drip attachment, wetting the seed as dropped, using about a gallon to each 400 feet. **Stem Rot** develops at harvest time, and onions should be dried quickly and not moistened unnecessarily. Treat them in crates in a tight room or tent with formalin fumes liberated by potassium permanganate, (23 ozs. to 3 pints formalin per 1,000 cubic feet of space). Place the potassium permanganate in one or more shallow dishes, add the formalin, leave quickly and close the room tight. For **Maggot**, practice crop rotation. For **Thrips** or "**White Blast**," spray early and often with soap and water or kerosene emulsion.

## PEA.

**Aphis** may be controlled by early planting of early varieties, spraying vines with soap and water or kerosene emulsion, and brushing vines just before cultivating.

## PEACH.

**Rot and Scab.** Spray first about May 15th with self-boiled lime-sulphur, repeat three or four weeks later, and give third treatment between July 5 and 15. Commercial lime-sulphur often injures foliage, and should never be used stronger than 1 to 150. For **Peach Sawfly**, lead arsenate, (1lb. to 50 gals.) may be used alone or with self-boiled, but not with commercial lime-sulphur. For **San Jose Scale** and **Leaf Curl**, spray with strong lime-sulphur in April just before leaves appear. For **Curculio**, see plum. Examine in May and September and dig out **Borers**.

## PEAR.

**Fire Blight** is a bacterial disease, treated only by pruning well below the affected tissues. Disinfect tools after each operation by wiping with sponge or rag moistened with

corrosive sublimate solution (1 to 1,000). Dress large wounds with white lead or coal tar paint. For **Scab**, spray with Bordeaux as for apple. Treatment unnecessary except on certain varieties. For **Psylla** and **San Jose Scale**, spray with strong lime-sulphur just before leaves start in spring.

### POTATO.

**Beetles and Blight.** Spray or dust with lead arsenate as soon as larvae appear. Paris green may be used, but will not stick as well and is more liable to injure foliage. For **blight**, keep vines coated after middle of July, with strong Bordeaux, to which lead arsenate may be added to kill **beetles**. From two to five Bordeaux sprayings are usually necessary, depending on the weather and manner of spraying. Hand-spraying is more thorough and effective than machine work. Deep planting and ridging protect tubers from rot. For **Scab**, plant on new ground, but avoid lime, wood ashes, or stable manure especially hog manure. Plant only smooth seed, but if at all scabby soak in formalin, q. v., or treat with fumes (see stem rot of onions.)

### PUMPKIN. SQUASH.

For **Borers**, slit stem lengthwise and kill larvae; cover stems with earth two to three feet from base and they will make new roots. For **Squash Bug**, destroy egg clusters by hand; spray with kerosene emulsion to kill young bugs.

### QUINCE.

**Fire Blight.** See pear. For **Leaf blight**, spray unfolding leaves with Bordeaux and repeat as soon as blossoms fall and again about three weeks later. Add lead arsenate for leaf-eating insects. For **Borers**, see apple. For **Curculio**, treat as for plum.

### TOBACCO.

**Calico** is communicated to healthy plants from diseased ones through touch. Make seed beds on land not in tobacco recently, and do not use tobacco water or stems on them.



Pull out all diseased or suspicious plants and cleanse hands with soap and water before touching other plants. Use great care in transplanting. Remove all plants left over in seed bed. For Root Rot, soak seed bed with formalin (No. 2) or sterilize with steam. For Cutworms, distribute poisoned bran mash about the field a few days before setting plants. For Flea Beetles and Hornworms, apply lead arsenate.

### TOMATO.

**Leaf Spot.** Keep plants covered with Bordeaux in seed bed and after transplanting. Add lead arsenate if flea beetles or hornworms are abundant.

## ANNUAL MID-SUMMER MEETING

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The mid-summer meeting of the Board was held at the Connecticut Agricultural College on May 28. This was a well attended meeting. The day was spent in examining the new Dairy barn, with its modern appliances, the dairy herds and other interesting things which may be found at the College. The Board was much pleased with the systematic care displayed and the thoroughness in evidence in the different departments. The Board felt well repaid for the time spent in this day's visit and freely stated that, in their opinion, the College was doing most excellent work.

## FAIRFIELD COUNTY.

Fairfield County, situated in the south-western part of the State is especially attractive to those who seek a home in the country, and desire at the same time to be in close touch with the business of the city.

Its fine commutation service, its many trolley lines, and miles of improved roads make its farms accessible to New York and to the manufacturing cities of Bridgeport, Danbury, Norwalk, Stamford, Shelton, and several smaller manufacturing towns, providing the best of markets for all the produce of the farm, within easy distance of the home.

The level lands along the shore furnish the best inducements to the market gardener, returning in many instances several hundred dollars per acre. The soil is fertile, easily tilled, affording the greatest opportunities for intensive farming, and is at no point more than ten miles from a good market. The Southport onion section in this county has been noted for many years as the garden of the State, thousands of dollars' worth of onions being raised annually.

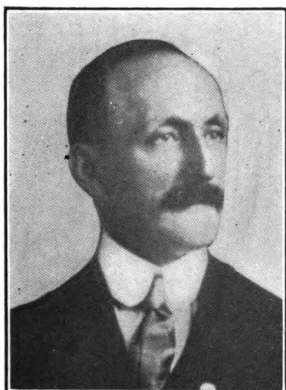
The inland towns of Easton, Huntington, Monroe, Trumbull, and Weston are desirably situated for the production of milk, it being practical to deliver the products of the herds directly from the farm to the consumer, thus netting the producer the best possible results.

There is no better grazing section in the State of Connecticut than the towns of Brookfield, Newtown, New Fairfield, Redding and Sherman, this locality having been noted for its dairy and beef products for many years. In the northern towns of Sherman, Brookfield and New Fairfield tobacco is raised profitably to a considerable extent.

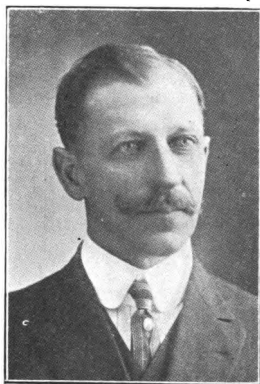
Ridges of high land, in every town of the county, running from two to six hundred feet above sea level, are especially adapted to fruit culture. The raising of small fruits is a desirable and profitable business, the nearness to market making it possible to deliver the most delicate varieties directly to the consumer thus blessing the town dweller and the pocket-book of the farmer at the same time.

## State of Connecticut—Board of Agriculture

### MEMBERS



**J. A. SHERWOOD**  
OF EASTON  
(Fairfield County)



**W. C. SANFORD**  
OF REDDING RIDGE  
(Fairfield County)



The old-time pasture lands are being converted into fertile hillsides by modern ideas of tillage, producing large crops of pears, peaches, apples, etc., and bringing handsome profits to the orchardists who develop their orchards along up-to-date methods, the slight elevations minimizing the danger of frost, thus increasing the uniformity of production.

The climate, the soil, the contour of the land, make a variety of exposures, enabling the orchardist to extend the ripening period of his fruit crops, and the easy access to market all combine to make this a most desirable fruit section.

Of all the various industries of the farm, none is more popular than poultry raising, either as a specialty, or in connection with other farm interests. The money in poultry depends largely upon the ability to sell the poultry products directly to the consumer, thus securing first prices and all the profits.

To do this one must be located near the consumer, and many are making a success of poultry by availing themselves of the opportunities afforded by the conditions in this county. Fairfield County is noted for its fine scenery, fertile soil and first class markets.

## HARTFORD COUNTY.

Hartford County is situated in the Connecticut River Valley, in the north-central part of the State. It is one of the richest agricultural sections of the State, and one of the most populous counties. Its railroad facilities are unsurpassed. The main line of the N. Y., N. H. & H. Railroad passes from north to south through the center of the county. The Northampton division of the same road passes in the same direction through the western part of the county, and the Springfield branch of the Highland division serves the towns on the eastern side of the Connecticut River. Crosswise of the southern part of the county runs the Highland division, while the north-western part is served by the Central New England Railroad. Hartland and Marlboro are the only towns in the county which have no railroad or freight facilities within their borders. In addition there is a network of trolley roads serving every town in the southern part of the county and the towns on both sides of the Connecticut River.

Hartford, the capitol city of the State with a population of over 100,000 is the county seat. It is a very wealthy city and demands a high-grade product in every line. New Britain, the second city in size, has nearly 50,000 population, and is one of the finest markets for all classes of agricultural products. Bristol, the third city, together with the town of the same name, has a population of about 15,000. Other large centers of population are Manchester, with about 14,000; Enfield, with about 10,000, and Southington with about 7,000. East Hartford, with a population of nearly 9,000, is so near Hartford that it should be called a part of the city. Scattered over the remaining parts of the county are manufacturing villages and business centers, while just over the State line in Massachusetts are the large cities of Springfield and Westfield, which furnish market facilities to the northern part of the county.

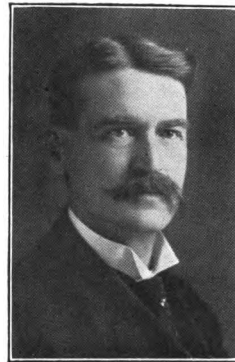
The principal agricultural industries of the county are tobacco growing, fruit raising, dairying, and market gardening. Hartford County contains the great Connecticut

# State of Connecticut—Board of Agriculture

## MEMBERS



**N. H. BREWER**  
OF HOCKANUM  
(Hartford County)



**C. E. BEACH**  
OF WEST HARTFORD  
(Hartford County)





River Valley tobacco belt. Two kinds of tobacco are largely grown,—the Connecticut Broad Leaf and the Havana Leaf. The Broad Leaf district is on the east side of the Connecticut River, this variety being grown extensively in Glastonbury, East Hartford, Manchester, South Windsor and East Windsor. The Havana Leaf district is mostly on the west side of the river. Windsor, Windsor Locks, Suffield, Granby, East Granby, Simsbury, Avon and the north part of Bloomfield are the principal towns, while Enfield and part of the town of East Windsor, on the east side of the river, grow this kind. Very little tobacco is raised in Canton, Hartland, Southington and Rocky Hill. Good tobacco land is in great demand, and to go into the business requires considerable capital. The best land commands a price from \$500 to \$1,000 per acre, while the barns in which to store the crop cost from \$200 to \$300 per acre. The cost of growing the crop varies considerably, as does also the money which the crop brings in. From \$100 to \$200 per acre will probably cover the cost, while the income varies from \$200 to \$500 per acre. For a few years past considerable tobacco has been grown under cloth, but this method is now confined mostly to large corporations, as it requires an immense amount of capital; and, up to date, its success has not been assured.

Fruit growing has become another important industry in the county. Glastonbury is probably the leading peach-growing town of the State. Its hills in the southern and eastern parts of the town are being covered with peach orchards, apple orchards, and vineyards, while berries of all kinds are grown extensively. Farmington is another town which is developing considerable of a name in the peach business. Southington and Berlin have large orchards of peaches and apples. There is plenty of room for like development in the other towns in the state. Apples will grow to perfection in any of the hill towns. Besides the towns mentioned, Granby, Hartland, Canton, Burlington, Bristol and Marlboro are eminently fitted for fruit growing.

Market gardening and dairying are carried on largely near the large centers of population. All the towns adjacent to Hartford and New Britain are largely developed along these

lines, and they are very profitable. Further back, dairying and general farming are the principal agricultural occupations.

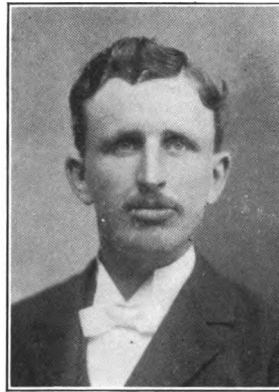
There is plenty of room in the county for agricultural pursuits of any kind. At the present time the farmers of the county do not produce nearly enough to supply the population. Potatoes, eggs, poultry, butter, and even milk are brought in in large quantities, while many other articles which might be raised here come from other sources. Farms near trolleys and large towns are eagerly sought after, but there is little demand for many of the back farms on account of their isolation, and many of them go begging on the market. For the farmer who does not mind being a few miles from trolley, railroad, or town there are plenty of good opportunities in Hartford County.

# State of Connecticut—Board of Agriculture

## MEMBERS



**RICHARD E. DODGE**  
OF WASHINGTON  
(Litchfield County)



**KARMI KIMBERLY**  
OF GOSHEN  
(Litchfield County)



## LITCHFIELD COUNTY.

Litchfield County is distinctly a farming area. Seventy-four per cent of its area is in farms and nearly half the farm land is improved. The value of farm land has increased more in the last decade than in any other county, except Fairfield and Hartford, which contain two of the largest cities in the State.

While general farming is prominent in the county, dairying is pre-eminent. Litchfield County leads all the counties of the State in the value of cattle, the number of dairy cattle, and in the amount of milk, cream and butter sold, according to the census of 1910.

Dairying is founded on sound principles and the most of the necessary cattle food is home raised, and is indicated by the fact that Litchfield County leads the State in the production of hay and forage, of clover and Timothy hay mixed, and of oats.

The cities of southern Connecticut, and New York City furnish unsurpassed market facilities with constantly increasing demands on production.

Among the cash crops that are produced are maple syrup and sugar, in which the county leads the State; swine, apples, tobacco and potatoes, in each of which the county ranks second; eggs, honey and sheep, in each of which it ranks third. Incidentally it may be remarked that the farmers of Litchfield County are raising more horses than any county in the State.

These favorable conditions for dairying or mixed farming, are due not merely to the excellent market facilities, but to the good lasting soils, the favorable climate of the growing season, and to the spirit of the farming population.

Litchfield County consists in large part of a rolling upland with narrow river valleys cutting below it. This upland with a striking scenic beauty that makes the county a favorite center for summer homes, is covered with a mellow glacial soil, especially adapted to hay, clover, corn and potatoes.

On the east side of the county is the Naugatuck Valley, containing the two largest cities of the county, the thriving manufacturing centers of Torrington (16,000) and Winsted (7,750). This valley gives an outlet also to Waterbury, one of the most prominent manufacturing cities of the State; as well as to Bridgeport, New Haven and New York. The narrower Housatonic Valley, with, in general, a limestone soil, gives access to the western portion of the county, and includes New Milford (5,000). This section includes the highest and most rugged regions of the State with several large and beautiful lakes, which are increasingly centers for summer homes.

The growing season is long enough for the maturing of corn, even on the higher sections; the rainfall is usually well distributed through the season and the summer's heat is rarely excessive. Nights are always cool, especially on the hill slopes. Summer homes should face the southwest, the prevailing summer wind.

The mileage of good roads is constantly increasing, both of State roads and town-made local roads. This is making markets more accessible and is increasing the use of automobiles for farm purposes.

Schools are, in general, well supported and are improving along modern lines. Towns that do not support high schools, as the smaller towns do not, are required to pay transportation to available high schools in other towns.

Litchfield County is a pleasant region in which to live, and a profitable section in which to engage in farming. The opportunities in dairying are just beginning to be realized, and the development of apples, swine, sheep, potatoes, honey and similar crops has great possibilities.

## MIDDLESEX COUNTY.

Middlesex County consists of fifteen towns. The surface is generally uneven, though the land near the sound is comparatively level, as also small areas in other parts of the county. A range of hills passes obliquely through the county from South to West to North East. The view of the Connecticut River from these hill-tops is superb. The river winding in a Southeasterly course through the county, separates the towns of Portland, Chatham and East Haddam on the East, from the other towns on the West. It has often been said that the scenery of the Connecticut is equal to that of the Hudson, especially through Middlesex County. Boats ply between New York and Hartford daily, at least nine months of the year, affording ample and cheap transportation for passengers and for the freight of the large manufacturers.

The river is spanned by five large iron bridges, two between Middletown and Portland; one a railroad bridge over which the N. Y., N. H. and H. R. R. crosses the county from East to West, the shortest direct route between New York and Boston. Also a highway draw-bridge over which the trolley runs, and which is the only free bridge across the river in the county. The bridge at East Haddam, which was completed last year is said to be the largest draw in the world, and is a boom to the farmers living in that section. This bridge has added greatly to the value of the farms in that vicinity. Two other bridges span the river at Saybrook; one for the highway, and the other for the "Shore Line" between New York and Boston. The "Valley Road" on the West side of the river makes steam travel accessible to all the towns in the southern section of the county. There is also a trolley line from New Haven through the shore towns up to Essex, and Deep River.

Middletown, the only city in the county, and the county seat, has a population of 21,000. It is situated on the Connecticut River midway between New York and Boston, is



the junction of three railway lines and has trolley connection to its suburbs and nearby towns. Its main street, about a mile in length, is said to be the finest in the state. Here is located the State Hospital for the Insane, also the Connecticut Industrial School for Girls. Wesleyan University, and Berkeley Divinity School, both well-known educational institutes are located here.

There are several large manufacturing industries in the city, and in the different towns throughout the county. East Hampton is reputed to have the greatest number of bell factories in the world.

The farming lands about Middletown are most fertile, being in the Connecticut Valley, where some of the finest tobacco is grown, as also a large acreage of corn, and all other farm products. Dairying is carried on extensively and profitably.

The towns on the east side of the river are noted for their fine oxen at the Agricultural Fairs and "Cattle Shows," of which there are several in the early autumn. More than 100 yoke of oxen have been exhibited, besides farm products of all varieties, noted for their quality and size.

Middlesex County is noted for its great peach orchards. Mr. C. E. Lyman of Middlefield has under cultivation between 400 and 500 acres, and Mr. Norris Barnes of Durham has about 140 acres. These orchards alone produced more than 200,000 baskets of peaches last season which were shipped to all points in New England, and as far West as Chicago and South to Baltimore and Philadelphia. Several small orchards in the county net a handsome profit to their owners. Middlesex County has the distinction of having the largest acreage under glass in the world, and A. N. Pierson of Cromwell employs between 350 and 400 men all the time.

The highways, especially the main roads, have been much improved throughout the county. A main trunk line between New York, and Boston goes through Middlesex County, as well as one to Waterbury and New London, the latter leading along the shore. Greater interest is taken in farming than a few years ago, and new methods are being tried successfully. Old pastures are being reclaimed, and

more stock raised, farmers finding great possibilities in this line, as the demand for beef increases.

There are few, if any, abandoned farms at present. In some sections, Italians have bought them and planted extensive vineyards which they make profitable. Business men are buying small farms as investments, and are improving land and buildings. Others come for the summer from the large cities, many of them building artistic bungalows.

Middlesex County is most desirable as a farming region, while its scenic attractions are above the average.

## NEW HAVEN COUTNY.

New Haven County borders on Long Island Sound. Extending inland for a distance of about three miles is a strip of surface that is flat or only undulating, while further inland the land rises somewhat and the surface is broken and hilly. Trap ridges cross the county north and south, exposing bold cliffs on one side and on the other sloping to the plain. Red sandstone ridges also abound, but are covered mostly with a soil that makes them ideal for orchards and vineyards. The broad tide-marshes, bold ridges, fresh water lakes (of which there are fourteen or more in the county) and quiet landscape of the plains, make the countryside a most attractive place of residence.

Milk is a staple product throughout the county and practically all of it is marketed in the near-by cities. In the production of milk, less reliance than formerly is placed on pasturage and more on silage and alfalfa.

Special crops are grown in some parts of the county. In the towns of Milford and Orange large quantities of garden seeds are grown and sold at wholesale and retail. In some places the very best of seed sweet-corn is raised. The towns of Hamden and Branford ship strawberries by the carload; and the former ships much garden truck. Peach growing has become one of the leading lines in Connecticut, and Wallingford in this county, on account of its high, well-drained ridges which are especially adapted to this crop, is the banner town of the whole state. Some of the largest orchards produced in 1913 nearly or quite 50,000 bushels per orchard. New Haven county, like the most of the state, is especially adapted to producing apples and this line is receiving more attention than formerly, though the possibilities in this crop are not yet all realized. There are single orchards now that are producing 2,000 to 3,000 barrels. And in quality, the apples (and peaches) of Connecticut we believe to be at the top. Poultry, garden truck and small fruits are profitable on account of the nearness to markets, to supply which no commission man is needed.

# State of Connecticut—Board of Agriculture

## MEMBERS



**CLIFFORD I. STODDARD**  
OF WOODBRIDGE  
(New Haven County)



**PROF. J. W. TOUMEY**  
OF NEW HAVEN  
(New Haven County)



About five-sevenths of the total population of the county live in the large manufacturing cities of New Haven, Waterbury, Meriden and Ansonia, making a great demand for farm products at fair prices.

Not only are the markets near at hand, but the facilities for reaching them are unexcelled. Six railroad lines converge in New Haven and a seventh skirts the north-western section. Trolley lines also run in every direction, many of which carry freight. The main highways are in excellent condition, so that practically all farms have easy access to large markets.

New Haven County has the one considerable harbor of New Haven. The Housatonic River, on its western boundary, is navigable by small vessels as far as Derby. Branford and other shore towns also have harbors for small crafts.

The facilities for education are unsurpassed. Yale University, with its departments of music, art, theology, law, medicine, forestry and natural science, can be reached by students from any part of the county in an hour's time. There is also one State Normal School in the county, and there are high schools in almost every town.

The Connecticut Agricultural Station has its office and laboratories in New Haven, and its experiment field near the city.

## NEW LONDON COUNTY.

New London County is the place where nature smiles; where man works and is happy in the working. The face of the land is diversified with many scenic beauties,—hills, cliffs, valleys, power streams, and productive plains. And everywhere is somebody near at hand ready to buy what the farmer produces. The land of the county is far more than able to provide all the staple food stuffs now consumed by its people. The towns of Lebanon, Colchester, and Franklin alone with their sweeping stretches of well-watered soil are able to feed and clothe the entire eastern half of the state. The dairyman, the fruit grower, the poultry man, and the sheep farmer each finds land suited to his needs.

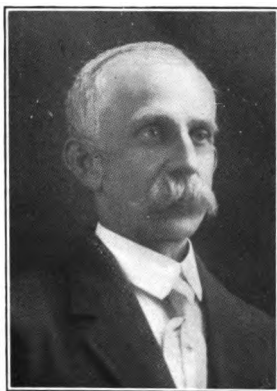
No finer peaches ever went to any market than came out of Ledyard last season, while Ledyard strawberries have been famous for a generation. The grape growers have discovered that New London County soils produce finest flavored fruit ready for the waiting markets two weeks ahead of the grapes from western vineyards.

Can potatoes be grown? On one farm in Preston 2,000 bushels were dug last season; on another 1,800 bushels. In the same town a measured acre in winter cabbage yielded over \$250. Areas devoted to ensilage corn frequently harvest 25 and more tons to the acre. The rougher portions of this county are a natural paradise for poultry. The smooth acres can readily grow the ninety-cent corn and the dollar-and-eighty-five-cent wheat to feed thousands of fowls.

New London County has a greater frontage on navigable waters than any other county in Connecticut, and this is to her people an unmatched asset of great value. In the near future this deep-water frontage will more and more be used for factory sites, and as factories multiply so will multiply mouths to be fed and backs to be clothed. The towns along the shore are enjoying a great increase of summer population, and it is the summer vacationers who cry loudly

**State of Connecticut—Board of Agriculture**

**MEMBER**



**FERNANDO WHEELER**  
OF STONINGTON  
(New London County)





to the poultryman, fruit grower, and dairyman for something to eat. Hence not only our natural agricultural possibilities and our present markets, which are only half supplied, but also the assumed increase of the markets are all very promising to present and prospective farmers.

Scarcely a neighborhood in New London County is so secluded but what it hears the locomotive whistle by day, or sees the searchlight of the trolley car flash on the clouds by night. Fine state roads are steadily stretching their humanizing beds across the county, and soon the remotest farmer with his auto truck will be in easy competition with the man who lives very close to market. Already the rural delivery of mails covers the county, and the parcel post is a great asset to the farmer marketing butter, eggs, and garden products. First-class cold storage facilities are available at Norwich and New London for all commodities requiring such. The educational facilities are excellent. In Norwich and New London are high schools of first rank, and the Connecticut College for Women is on the Thames River, just north of New London. Churches are everywhere. New London and Norwich maintain well-appointed hospitals. In nearly every town in the county is a flourishing Grange.

## TOLLAND COUNTY.

Tolland County is a typical "hill-town" section of Connecticut. The western portion of the county, however is more level and somewhat resembles the Connecticut River Valley section. The county as a whole is picturesque and generally well-wooded. The water supply is abundant; the seasons are long, and the soil is naturally fertile and well adapted to the growing of general crops. Tolland County boasts of only one city of importance, namely, Rockville, one of the largest and most important woolen-manufacturing centers in New England. Stafford Springs has long enjoyed a great volume of business in the production of high grade woolens. Willimantic, though situated just over the line in Windham County, is really the city that handles the bulk of the trade of the eastern as well as southern sections of Tolland County. It is the railroad center of eastern Connecticut, and as such it naturally is the distributing point for the section.

The climate of Tolland County is particularly inviting and conducive to long life and happiness. The major portion of the county reaches an elevation of 500 feet or more, and in the northern and eastern sections elevations of 800 feet and above are common. As the county is not given to the growing of mosquitoes, malaria is not a troublesome malady. The air is clear and the water is pure. The county enjoys splendid educational advantages. The common schools are practically all under state supervision. There are excellent high schools at Rockville, Willimantic, and Stafford Springs. Not only is the tuition of pupils desiring to attend these schools paid, but transportation charges are paid in whole or in part by the town in which the pupil resides. At Storrs, in Tolland County, is located the Connecticut Agricultural College and the Storrs Experiment Station. The cost of a full course or a short course is relatively small. Tuition is free to pupils of Connecticut. Board is furnished at cost. The agriculture of the county is largely dairying, poultry raising, and fruit growing, the relative importance of the three being in the order named. The soil is friendly to the growing of

large crops, and the cheap land to be found in almost every section of the county affords pasturing at relatively low cost. The county is naturally a grazing section, and with abundant water and natural shelter, dairying and live stock raising have great possibilities. The several creameries at Somers, Vernon, Andover, and Lebanon are especially equipped. Under present conditions in the whole milk market, the shipment of milk to Providence, Boston and other large cities is not encouraging. Tolland County is enjoying the fruits of a large and flourishing poultry industry. There are many large poultry plants in the county, others are fast growing, and this industry has unlimited possibilities. The county is fortunately situated in the matter of markets, being midway between New York and Boston and may be likened to the hub of a wheel with spokes reaching to Worcester, Springfield, Hartford, Waterbury, New Haven, New London, Providence, and other large industrial centers within a radius of less than 100 miles from all points in the county. These markets besides the local cities earlier mentioned, consume enormous quantities of eggs and all kinds of farm produce, and the poultry industry is capable of unlimited development. Generally speaking, fruit growing in the county has been neglected. Of late, however, the industry is being pushed, particularly by specialists. The land, particularly the higher elevations, afford advantages for successful fruit culture, (especially apples and peaches) second to no other section. Elevation and air drainage (which count for much in the fruit business), together with the relatively low price of land should be the means of attracting attention to fruit growing in all its branches.

The western section of the county enjoys prominence as a tobacco-producing section. The towns of Vernon, Ellington, and parts of Somers contribute vast amounts of choice leaf tobacco to the industry, which above all others of an agricultural nature has given Connecticut agriculture a world-wide fame.

In the western section too may be found a large and growing industry in the production of vegetables and truck crops. Tolland County is not growing a fraction of the po-

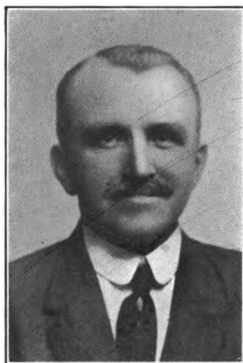
tatoes that it should grow, and this in spite of the fact that it is a cash crop and that soil is admirably adapted to the growing of the crop.

The time is coming, and that very soon, when these Tolland County hills will attract raisers of sheep and beef cattle. As stated before, the county is naturally a grazing section, and with abundant water and natural shelter these industries should grow and flourish.

The fact that there are no fashionable colonies of "summer people" in Tolland County in a measure accounts for the presence in this county of more farms than perhaps can be found in any other county. But land values are appreciating very rapidly. Real-estate dealers are practically agreed that land values have doubled in the past ten years, and in some sections values have more than doubled in the past five years.

**State of Connecticut—Board of Agriculture**

**MEMBER**



**EVERETT E. BROWN**  
**OF POMFRET**  
**(Windham County)**



## WINDHAM COUNTY.

Windham County lies in the northeast corner of the state. Its highest elevation is in the town of Westford, where it reaches the elevation of nearly 1,200 feet, and its lowest elevation is in the town of Canterbury, where there are plains that are only 100 feet above sea level.

The universal and striking impression made on the new comer is that of uneven, hilly country. The proportion of land that is too steep to cultivate is very small, but the proportion that is as smooth as a western prairie is much smaller. The general slope of the land is southward. The Quinebaug River with its tributaries, drains most of the eastern half of the county. The Shetucket River, formed by the junction of the Willimantic and Natchaug Rivers, receives the drainage of the south-central and western sections. The streams supply water for domestic purposes and the larger ones furnish the power for the running of many of the manufacturing plants of the county.

At this date (1914) we have no abandoned farms, and only a few upon which are tenantless houses. Most of these are now in the eastern part of Ashford and Westford. Farms "for sale" are mostly those that have come upon the market in the settlement of estates.

Transportation facilities of the county are excellent. Main lines of the N. Y., N. H. & H. Railroad, connecting New York with Boston, and Providence, cross the county from southwest to northeast. On the east is a through line connecting Worcester with New London, and on the western border is the Central Vermont running north and south. Trolley lines, with a good freight service, reach several towns in the county. Thus nearly every farm is in easy driving distance of some line of road, either steam or electric and is in good touch with markets. The most inaccessible sections are parts of the towns of Eastford and Ashford, which are from eight to sixteen miles from any railroad. There are, however, good roads connecting this section of



the county with Willimantic and Stafford Springs (in Tolland County).

There are fine State trunk lines in the county, two crossing from east to west and two traversing it from north to south. The town roads, maintained entirely at local expense, are constantly being improved, and macadam and gravel roads are being extended.

The largest city in the county is Willimantic, with a population of about 22,000. The next is Putnam, with a population of about 7,000. Then Danielson with a population of 3,000, each of which is an important manufacturing center with several mills. Other important manufacturing centers are Central Village, Plainfield, Grosvenordale, and North Grosvenordale, all situated along the Quinebaug River and its tributaries, and in the eastern part of the county.

The towns not having any large manufactories are Thompson (The Hill), Pomfret, Woodstock, (East, North, South and West), Eastford, Ashford, Westford, Chaplin, Hampton, Canterbury, Scotland, Brooklyn, and Sterling. Woodstock, Pomfret, Thompson and Brooklyn, especially, are beautiful villages and have gained quite a reputation as a resort for summer people; but Windham county as a county is a farming section.

Farm conditions have improved wonderfully in the last fifteen years. Dairying has developed rapidly and has added much to the farmer's income. The great majority of the successful farmers have at least a small herd of dairy cows adapted to that line of dairying in which they are engaged. Most of the milk is shipped to Boston and Providence. The major part of the remainder is retailed at good prices in the local villages or made into butter or cheese. A creamery located at Brooklyn takes much of the cream produced by the dairy herds in the near-by towns. Dairy stock is being improved, and all the breeds are increasing in numbers.

Orchard products of the county in 1909 were more than three times the value reported in 1880. New orchards are being laid out. Climate, soil and market opportunities favor an increase of this form of farming. Truck crops are grown to a considerable extent and a goodly number of the farmers

are doing well at this line of farming. There are areas of wet, mucky land now lying idle that would produce large crops of cranberries, and with drainage, better land could not be found for the raising of onions and celery. It has been demonstrated that the growing of alfalfa can be made a success when the land is properly prepared.

Hay and corn are among the best crops grown. Corn is raised extensively for silage, and hay is fed both to the dairy stock and horses on the farms, and sold to the livery and sale stables at good prices (usually \$20 per ton). The rougher stone areas, which are not suitable for cultivation make the best of pasturing for the raising of sheep, a branch of farming which is on the increase.

### SUMMARY

Considering the comparatively low prices of farming land, the adaption of the soils to a number of different crops, and the high prices commanded by all the products the opportunities in Windham County for scientific farming are good. Satisfactory profits can be made in dairying and hog and sheep raising. The production of some other live stock is practicable. There is a market for well-broken yokes of oxen and for fresh cows. Poultry raising may be specialized to advantage. The apple finds congenial soil and climatic conditions here may be made very profitable. Not only the skilled specialist who aims to produce the finest fruit for the barrel or the box trade, but the man who is willing to work, observe, and learn will succeed on a farm in Windham County.

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## STATE CENSUS, 1910. FARMS AND FARM PROPERTY, BY COUNTIES

April 15, 1910.

	The State	Fairfield	Hartford	Litchfield	Windsor	New Haven	New London	Tolland	Windham
Population	1,114,756	245,322	250,182	70,260	45,637	887,883	91,253	20,459	48,361
Population in 1900	908,420	184,203	195,480	63,672	41,760	208,168	82,758	24,523	46,861
Number of all farms	26,815	4,625	5,201	3,837	1,852	3,750	3,030	2,161	2,359
Number of all farms in 1900	26,948	4,727	5,110	4,164	1,788	3,472	3,014	2,120	2,553
Color and nativity of farmers:									
Native white	19,841	3,449	3,715	2,994	1,297	2,593	2,380	1,533	1,880
Foreign-born white	6,861	1,151	1,457	828	1,551	1,150	628	625	471
Negro and other nonwhite	113	25	29	15	4	7	22	3	8
Number of farms, classified by size:									
Under 3 acres	223	46	56	16	15	59	21	3	7
3 to 9 acres	2,693	586	672	265	180	477	211	145	157
10 to 19 acres	3,119	723	787	272	230	457	241	200	209
20 to 49 acres	6,306	1,389	1,412	601	452	999	524	452	477
50 to 99 acres	6,634	1,079	1,219	942	481	936	769	613	595
100 to 174 acres	4,999	567	736	1,008	329	557	770	492	540
175 to 259 acres	1,702	150	204	398	99	172	292	159	228
260 to 499 acres	911	68	91	274	44	76	167	79	112
500 to 999 acres	188	15	20	53	15	13	25	17	30
1,000 acres and over	40	2	4	8	7	4	10	1	4
LAND AND FARM AREA									
Approximate land area	3,084,800	403,840	466,560	592,000	236,160	385,920	421,760	258,560	320,000
Land in farms	2,185,783	267,561	328,218	438,339	149,625	248,049	318,371	194,248	241,377
Land in farms 1900	2,312,083	280,106	348,806	444,151	150,605	260,305	326,706	205,693	270,711
Improved land in farms	988,252	141,310	172,655	209,918	53,495	123,888	129,126	68,975	88,485
Improved land in farms 1900	1,064,525	192,061	198,562	230,389	51,491	126,446	127,331	68,608	102,239
Woodland in farms	757,743	69,959	104,587	143,307	70,157	81,701	118,355	78,784	90,901
Other unimproved land in farms	439,793	56,292	50,985	85,114	25,973	42,460	70,489	46,489	61,991
Other unimproved land in farms, acres									
VALUE OF FARM PROPERTY									
All farm property	159,399,771	43,322,647	35,416,482	21,835,643	7,931,817	21,049,769	12,541,114	7,995,337	9,306,969
All farm property in 1900	113,305,580	25,502,280	24,990,812	16,165,935	6,002,437	15,874,024	10,436,511	5,946,266	8,387,308
Per cent increase 1900-1910	40.7	69.9	41.7	35.1	32.1	32.6	20.2	34.5	11.0
Land in 1900	72,206,058	23,103,353	14,674,813	9,146,722	3,109,704	10,048,504	5,286,596	3,040,784	3,795,580
Land in 1900, dollars	52,441,508	13,264,060	11,271,468	7,115,230	2,699,550	7,731,468	4,652,210	2,379,380	3,325,700
Buildings	66,113,163	16,577,929	16,165,939	9,140,247	3,690,265	8,220,725	4,999,660	3,471,407	3,846,991
Buildings in 1900, dollars	44,983,560	9,571,680	10,622,840	6,241,690	2,386,160	6,018,350	4,058,190	2,499,930	3,584,720

## STATE CENSUS, 1910. FARMS AND FARM PROPERTY, BY COUNTIES. (Continued.)

April 15, 1910.

The State	Fairfield	Hartford	Litchfield	Middlesex	New Haven	New London	Tolland	Windham
Implements and machinery dollars...	6,916,648	1,691,732	973,549	365,030	930,695	633,502	460,408	528,267
Implements, etc., in 1900 .....	4,948,300	1,022,550	677,690	287,210	713,280	473,170	333,190	437,780
Domestic animals, poultry, bees ..	14,163,902	2,883,998	2,575,123	766,818	1,849,843	1,621,354	1,022,738	1,156,131
Dom. animals, etc., in 1900..dollars..	10,952,212	1,993,974	2,131,323	629,517	1,408,484	1,252,941	733,766	1,019,108
Average values	5,944	9,367	5,691	4,283	5,613	4,139	3,700	3,945
All property per farm.....	5,158	8,580	4,766	3,395	5,613	3,395	3,014	3,240
Land and buildings per farm ..	33,033	86,335	44,711	20,781	40,511	16,611	15,651	15,721
Land per acre.....	22.68	32.31	15.10	17.92	29.71	14.33	11.57	12.29
DOMESTIC ANIMALS (farms, ranges)								
Farms reporting domestic animals...	24,262	4,137	3,530	1,657	3,310	2,813	1,966	2,141
Value of domestic animals...dollars..	13,133,340	2,693,014	2,446,563	707,820	1,682,215	1,489,220	951,535	1,060,406
Cattle:								
Total number .....	195,318	33,052	41,685	10,938	22,880	25,362	16,507	18,501
Dairy cows .....	122,853	21,899	26,539	6,036	14,710	14,396	9,863	11,621
Other cows .....	17,173	2,062	4,075	868	1,892	2,572	1,518	1,754
Yearling heifers .....	20,601	2,586	4,168	1,185	2,242	2,586	2,014	2,189
Calves .....	20,601	2,976	4,428	1,095	2,670	2,673	1,655	1,832
Yearling steers and bulls.....	9,312	462	831	408	451	650	485	398
Other steers and bulls .....	9,612	1,018	1,644	1,346	915	1,985	972	707
Value .....	6,730,287	1,204,886	1,387,348	371,769	810,981	819,361	522,183	557,277
Horses:								
Total number .....	46,341	7,861	7,851	2,527	6,289	5,008	3,165	3,890
Mature horses .....	45,610	7,743	7,699	2,466	6,206	4,906	3,128	3,826
Yearling colts .....	638	104	126	54	72	95	29	60
Spring colts .....	93	14	26	7	11	8	8	4
Value.....dollars..	5,739,409	1,351,339	946,362	296,794	769,127	584,738	356,759	450,205
Mules:								
Total number.....	416	92	62	27	57	30	19	15
Mature mules .....	409	91	57	27	57	30	19	14
Yearling colts .....	7	1	5	1	1	1	1	1
Spring colts .....								
Value .....	72,721	14,525	12,225	4,990	9,435	4,125	4,250	1,915
Asses and burros:								
Number .....	41	5	9	1	5	3	2	2
Value .....	3,057	235	865	12	185	60	1,050	95

# STATE CENSUS, 1910. FARMS AND FARM PROPERTY, BY COUNTIES. (Continued)

April 15, 1910.

	The State	Fairfield	Hartford	Litchfield	Middlesex	New Haven	New London	Tolland	Windham
<b>Swine:</b>									
Total number .....	52,372	7,410	10,873	9,286	3,334	8,640	5,485	3,278	4,066
Mature hogs .....	30,438	4,335	6,567	4,864	2,256	5,442	2,819	1,916	2,259
Spring pigs .....	21,914	3,075	4,306	4,422	1,078	3,198	2,666	1,362	1,807
Value .....	472,741	68,086	94,867	81,133	29,400	79,139	51,062	30,005	39,049
<b>Sheep:</b>									
Total number .....	22,418	1,470	3,179	3,261	1,093	2,562	6,576	1,453	2,524
Rams, ewes and wethers .....	14,043	903	2,019	1,968	658	1,714	4,291	849	1,641
Spring lambs .....	8,375	567	1,160	1,293	435	1,148	2,285	604	883
Value .....	112,349	8,312	20,006	18,348	4,616	12,884	29,556	7,062	11,565
<b>Goats:</b>									
Number .....	500	65	94	70	32	49	117	13	60
Value .....	2,785	531	425	282	239	464	318	226	300
<b>POULTRY AND BEES</b>									
Number of poultry of all kinds .....	1,265,702	232,970	283,201	165,867	75,660	197,569	150,102	98,573	106,760
Value .....	988,653	193,683	186,375	122,252	56,132	161,591	123,896	69,024	73,700
Number of colonies of bees .....	9,445	1,999	1,045	1,430	673	1,308	2,010	496	484
Value .....	41,839	9,573	4,609	6,310	2,866	6,039	8,238	2,179	2,025
<b>FARMS OPERATED BY OWNERS</b>									
Number of farms .....	23,234	3,877	4,567	3,278	1,704	3,319	2,523	1,961	2,005
Number of farms in 1900 .....	22,705	4,012	4,357	3,448	1,619	2,973	2,353	1,853	2,090
Land in farms .....	1,831,807	207,714	284,254	356,200	135,196	217,038	256,703	174,433	200,269
Improved land in farms .....	827,009	109,508	149,503	171,078	48,149	107,961	105,945	61,055	73,810
Value of land and buildings .....	106,841,306	23,070,509	26,128,926	14,324,391	5,874,164	15,728,625	8,156,108	5,725,258	5,833,325
<b>FARMS OPERATED BY TENANTS</b>									
Number of farms .....	2,632	454	483	404	104	343	432	137	275
Number of farms in 1900 .....	3,467	576	669	596	115	381	597	211	322
Land in farms .....	217,332	28,798	27,628	50,089	7,107	20,275	46,714	9,375	27,346
Improved land in farms .....	99,685	15,166	14,799	24,764	2,886	10,404	18,771	3,132	9,763
Value of land and buildings .....	11,804,967	3,105,785	2,707,980	1,857,825	316,305	1,341,884	1,423,550	334,213	717,425
<b>FARMS OPERATED BY MANAGERS</b>									
Number of farms .....	949	294	151	155	44	88	75	63	79
Number of farms in 1900 .....	776	139	84	120	54	118	64	56	141
Land in farms .....	136,649	31,049	16,336	32,050	7,222	10,716	14,954	10,400	13,762
Improved land in farms .....	61,558	11,436	8,353	14,070	2,460	5,533	4,810	4,788	5,912
Value of land and buildings .....	19,672,998	11,504,988	2,003,846	2,104,753	609,500	1,198,720	706,600	452,720	1,091,821

## PRINCIPAL CROPS, BY COUNTIES

	The State	Fairfield	Hartford	Litchfield	Middlesex	New Haven	New London	Tolland	Windham
Corn .....	52,717 bushels..	7,819 364,739	13,613 685,263	7,545 360,082	2,905 164,341	6,692 325,653	6,242 295,515	3,590 141,145	4,311 193,804
Oats .....	10,207 bushels..	1,490 35,066	985 24,911	3,874 113,674	416 11,082	658 16,680	1,253 33,498	713 18,197	818 20,696
Buckwheat .....	2,797 bushels..	213 4,722	369 6,896	577 11,854	255 4,801	277 5,171	445 7,543	320 6,064	341 4,700
Rye .....	7,601 bushels..	1,644 31,667	1,406 23,981	1,093 20,225	594 11,307	1,649 31,300	449 6,437	431 7,659	335 5,116
Potatoes .....	23,959 bushels..	4,298 404,481	5,273 665,053	3,685 465,117	1,371 15,672	3,859 385,065	2,306 249,875	1,531 177,893	1,636 180,217
Tobacco .....	16,042 pounds..	253 412,095	13,774 24,365,134	1,144 1,897,205	308 504,330	4 7,356	2 1,030	557 922,873	..... 430
Hay and forage, total.....	28,110,453 acres..	401,322 549,366	63,099 71,739	83,570 111,213	23,980 37,085	49,235 65,661	53,441 62,770	31,345 48,730	40,891 48,794
Timothy alone.....	82,083 acres..	7,731 9,933	13,095 21,309	5,562 7,537	5,604 7,955	8,968 12,672	6,700 13,529	5,274 8,069	5,950 7,158
Timothy & clover mixed.....	127,920 acres..	24,050 25,242	16,280 23,543	28,990 31,809	7,654 10,002	11,998 14,796	19,351 18,984	8,253 10,741	11,344 12,779
Clover alone.....	1,598 acres..	257 290	347 699	330 496	77 163	91 151	180 264	115 219	201 280
Millet or Hungarian grass.....	2,962 acres..	222 195	402 669	581 900	168 268	539 846	455 621	331 529	284 462
Other tame or cultivated grass (exclusive of alfalfa).....	171,141 acres..	26,948 22,801	20,061 24,262	41,862 37,436	7,464 7,712	21,661 19,607	20,077 16,802	14,106 13,529	18,962 17,216
Wild, salt or prairie grasses.....	13,235 acres..	1,395 1,870	1,346 1,666	1,153 946	1,773 2,113	2,828 3,216	2,452 2,113	1,117 951	1,171 1,017
Grains cut green.....	11,110 acres..	1,189 2,353	1,438 3,056	1,815 3,775	344 659	1,256 2,373	2,408 4,299	953 1,600	1,707 2,904
Coarse forage.....	11,750 acres..	1,249 8,821	2,713 27,826	3,228 28,254	856 8,118	1,829 11,786	1,712 11,988	1,176 12,997	987 6,635
All other hay and forage.....	116,425 acres..	612 334	79 344	49 260	40 95	65 214	16 49	20 95	285 323

## SEED CORN TESTING.

By N. HOWARD BREWER,

Hartford County.

Hockanum, Connecticut.

One of the chief causes of low corn yields in New England is a lack of stand in the field. This lack of stand is frequently due to seed corn of low vitality, or in many cases to planting dead seed. In New England the wet cold winter, the humid and variable spring weather tends to reduce the vitality of the germ in the kernel of corn. This has been proven, as I have learned, by thousands of tests in the corn belt of the Mississippi Valley for several years as well as in my own experience in New England.

It is little less than criminal for a man whose family depends on the product of the farm where corn is one of the crops, to plant seed which is low in vitality or dead, thus ensuring a poor stand, inferior crop, low yield, and poor returns for the summer's work.

Much seed corn in New England will sprout, but the vitality is so low that the plants grow but slowly and produce small inferior stalks and undeveloped ears.

The question naturally arises in the minds of the progressive, interested farmer, "Can I prevent this loss, can I know the vitality of my seed before I plant it?" This question can be answered most emphatically in the affirmative. Every corn grower can test his seed and know exactly its condition before planting. Every poor ear can be detected and discarded. Every good ear can be saved for planting, and what is more it can be done at practically no expense other than a little time. It is extremely interesting to test seed corn. Every farm boy who loves the farm, every girl who loves the plants on the farm will find it a most interesting and pleasing task. The school children would enjoy it and

tend to make them more interested in the farm, its plants and outdoors, and make them better men and women.

This is a simple plan for testing seed ears:

The seed ears should be carefully selected. The mature, dry, heavy ears with straight rows of kernels, selected for planting. The tips and butts of the ears should be well capped over. The kernels should be all of the same color, and any foreign color, indicating mixture should be discarded. A deep kernel with fairly small cob should be selected for seed. Above all, the heaviest, dry, sound ears should be saved for planting.

Now for the test box. Get a soap box, or make a box three feet long, two feet wide, and six inches deep. Secure some good clean saw-dust, place it in a coarse bag and immerse it in hot water until it is thoroughly saturated. Pack this wet sawdust in the box about three inches deep and smooth the top over level. Now take a white cloth, cut out a piece the size of the box, and with a yard stick and lead pencil, rule it off into squares, checker board fashion, the squares being two inches on a side.

Number every square, beginning in the upper left hand corner in large plain numbers. Now lay this cloth, ruled side up, in the sawdust, and tack to the sides of the box. Now take the seed ears and tie a tag around every one. Number every ear on the tag from one to as many ears as are selected.

It takes from 12 to 16 ears of Dent corn to plant an acre, and from 24 to 36 ears of Flint, so it can be figured closely how many ears you must select for testing.

Now take six kernels out of each ear from different parts. Place the kernels from ear one, in square one, germ side up, as fast as the kernels are taken from an ear lay them in their respective square with corresponding number at once so as to avoid mistakes.

After the squares are filled lay another piece of cloth gently over them and pack the remainder of the box full of wet saw-dust, and set the test box in a warm room for five or six days. After this time, gently remove the top cloth and sawdust by carefully rolling it off so as not to disturb



the kernels. It will be found that some of the samples have not sprouted. The number of the squares in which these samples are found will show the number corresponding to the ears from which the samples come. Discard these ears for seed. Some samples will have puny, small, irregular and dwarf sprouts. Discard these also. Save only the ears from which strong sprouting samples come.

The results will be strong, vital seed from which a perfect stand, and high yield should be secured. To neglect this, is negligence, and carelessness found with shiftless, indifferent corn growing.

It is practical to test every seed ear. Hundreds of thousands of farmers find it pays handsomely in money returns to do it every year.

**TRY IT!!**

## FORESTRY IN CONNECTICUT.

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In looking over the reports of the State Board of Agriculture for the past fifty years, I find the first indication of an interest in forestry in 1875 when a paper on "Fences," read by Mr. Donald G. Mitchell, led to a discussion of fence posts in which Professor W. H. Brewer took a leading part. Largely as a result of this discussion, I presume, Professor Brewer delivered a lecture on "Woods and Woodlands" at the winter meeting of the Board in December 1876. For the next twenty-five years, some phase of the subject of forestry seems to have received attention at nearly every winter meeting of the Board, with indications of an ever-increasing interest. From time to time, the need of forestry investigations by the State is suggested in the reported discussions. To meet this need, the Connecticut Agricultural Experiment Station started some experiments in the grafting of nut bearing trees in 1897, and in April 1901 added a professional forester to its staff with a view of making more extensive forestry studies. During the same year, the General Assembly made the Station Forester also State Forester, and authorized the purchase of land for a State Forest.

Since the Board of Agriculture was indirectly responsible for the adoption of forestry as a policy by the state it seems fitting that the annual report of the Board should give some space to a discussion of the present status of forestry in Connecticut and the prospects for its future development. Sufficient progress has already been made to warrant the proposal of a broader forest policy, the adoption of which by the state would make possible in future years, a steady advance toward a definite goal,—the development of the forests for a sustained maximum production.

Looking back for a moment to Professor Brewer's lectures of nearly forty years ago, we find him quoting U. S. Census figures to show that the cultivated area of the state had decreased, and the area in woodland had increased, from

1860 to 1870. The census figures for 1900 and 1910 show a continued decrease in the area of cultivated farm land. In the fifty years from 1860 to 1910 this decrease amounted to 871,000 acres which is 47% of the total area of land reported under cultivation in 1860. These figures indicate that nearly 28% of the area of the state has been reverting to forest during the past half century, for the greater part of the unimproved area is undoubtedly brushland or woodland to-day. Adding this to the 649,000 acres reported as woodland in 1860, we should have at least 1,500,000 acres, or nearly 50% of the state bearing forest growth to-day. As there has been no recent forest survey of the entire state we cannot check these figures, but in the Board of Agriculture report of 1901, Professor Brewer gives 1,200,000 acres or 38½% as the area of woodland determined by the U. S. Geological Survey in 1889. If cultivated land has continued to revert to forest at the same rate for the past twenty years as it did during the previous thirty, there seems good reason to believe that very nearly, if not quite, one and a half million acres of land in the state is now given up to forest growth, or is waste land upon which forest growth might well be encouraged. During the coming year a forest survey will be completed which should give more accurate figures regarding the situation than have been available heretofore.

Even though the figures quoted above should be proven too large, the importance of the forest area is evident. Accepting one million acres as a safe and easily handled figure, it is readily seen that the economic welfare of the state might be considerably affected by an increase in the annual yield. For instance, the difference between ten cents per acre and \$1.10 per acre as an average return per year would mean one million dollars difference in the annual revenue of woodland owners. Ten cents per acre is probably lower than the average annual yield of Connecticut forest land, but any one who has sold his wood or timber recently may readily determine whether or not his woodlot showed any better returns, for the gross receipts per acre divided by the number of years of growth will give the average annual income per acre.

The results will vary with the distance from market, the rate of team hire and the market price as well as the kind of material cut. For chestnut, from five to twenty-five cents per acre for cordwood; from twenty-five cents to one dollar and a half per acre for lumber and ties; and from fifty cents to two dollars and a half per acre for poles probably represents the range in annual returns. If the net instead of gross annual income per acre were figured, with due allowance for taxes and interest on investment, the result would show a financial loss in many cases. Most woodlot owners do not take these factors into consideration in figuring their profits, and for the purpose of this paper, their example will be followed. However, it must be remembered that taxes and interest should be included as part of the annual expenditures, and in European countries, they are deducted from the gross receipts before figuring the annual income. The larger part of the present forest growth of the state will never produce anything more valuable than cordwood (because of fires, disease, frequent cutting, inferior species, etc.). Furthermore, changing economic and industrial conditions have greatly reduced the demand for cordwood. It has been displaced by coal, gas and oil as a fuel in many industries as well as for household use, and charcoal produced in other states as a by-product of distillation can be shipped in more cheaply than it can be produced here by burning. At the same time, the cost of producing and selling cordwood has increased while the lessening demand has prevented a corresponding advance in the market price. Taking into consideration these factors, it seems fair to consider twenty-five cents per acre per year as a conservative figure to represent the average annual income from forest land. This is a rather arbitrary conclusion, but for lack of better figures may serve as the basis for an interesting calculation.

At twenty-five cents per acre per year, the 1,500,000 acres of Connecticut forests would yield an average annual revenue to the owners of \$375,000. That is, if nothing were done for the next fifty years to improve the present forests, except to protect them from fire, we might expect that the

owners would receive an average annual return of \$375,000 during that time. If by proper management this average annual income could be increased one million dollars, the entire state would benefit, but especially those towns where forest land forms a large percentage of the area, and where large income producing industries are lacking. Of course, such a result could not be brought about in a year or a decade, but that it is not impossible of accomplishment is proven by the experience of European countries.

In Saxony the net income per acre from about half a million acres of state lands under forest management rose from \$1.10 in 1830 to \$5.10 in 1897, an increase of \$4.00 per acre in net income. Wurtemberg shows almost equally good results, for the net income of \$.82 per acre in 1830 had risen to \$4.29 by 1897, an increase of \$3.47. This increase is partly due to a rise in prices following the Franco-Prussian war, but this very increase made possible increased expenditures for cultural operations and intensive management which have resulted not only in greater total wood production, but a larger proportion of timber products which could be profitably disposed of. In other words both quality and quantity have been improved in direct ratio to the amount of money expended in forestry work.

Would such results be possible in Connecticut? Why not? If scientific methods applied to our agricultural crops have increased the yields and consequently increased the returns, the forest crop heretofore left to take care of itself should show similar response to intensive treatment. It is true that we have much to learn in regard to the handling of our forests, and because of different conditions, cannot always directly apply the lessons learned in other countries, but the general principles which underlie the practice of forestry there must form the foundation for it here. For instance, we must recognize the fact that forest practice is necessarily limited by economic conditions. Conservative lumbering can be practised on a large scale only when it has been proven profitable, and all cultural operations must justify themselves by increased financial returns. We cannot afford to allow slow growing or comparatively value-

less species to occupy land which might produce quick returns if some more valuable species were substituted. It is therefore necessary to determine the species best adapted to our needs and our conditions, as well as the methods of management which will produce the most profitable results.

Experimental work of this nature extending over a long term of years is more easily and more successfully carried out by the state than by individuals. It necessarily follows that the state should own forest lands for such work, and European experience shows that State Forests can be made a source of considerable revenue. Furthermore, because of the difficulty of carrying out a definite system of forest management through a long term of years, the future production of large timber under private ownership will very seldom be possible in this country. Changes in ownership, or the need of early returns from the investment, will prevent the forest from attaining its possible maximum results. For many reasons, the State is the ideal long term investor, and the forest policy of every state should include the securing of as large an area as possible of land suitable for State Forests.

Connecticut has made a beginning in this direction, and at present the state owns about 2500 acres of forest land. There are four separate tracts in as many counties. Representing different conditions, these four areas afford an opportunity for some experimental work, but no one tract is large enough to be managed economically. The largest is but 1100 acres, and a tract of 2500 acres could be handled just as cheaply with a better opportunity for making it self-supporting. A tract of at least 2500 acres in each county would provide demonstration areas where neighboring woodland owners could be shown the results of forest planting, protection from fire, improvement cuttings and other cultural operations. Such areas might also be made centers for the propagation of fish and game, and under proper management, would in time produce supplies of large timber, the sale of which would add to the revenue of the state. Under regulations, such areas might be used for camping and recreation purposes by the people.

With the establishment of a definite and sustained supply of needed material, new industries might be built up in the vicinity of these forests which would create better markets for the products of privately owned forests. The industries of the state which bring in large quantities of wood and lumber from outside might be able to supply their needs with home-grown products, if these needs were studied and the forests managed with that end in view. This would mean money remaining in the state which is now largely spent outside and an enhanced prosperity for the community as a whole.

To bring about such results requires time, and the only way to conserve this time is to begin the work at once. Furthermore, the purchase of large tracts of forest land by non-residents for the purpose of developing large country estates is rapidly advancing the price of such lands. If sufficient forest area for the purpose is to be acquired by the state at reasonable prices, it must be done in the near future. There can be little question but what ownership and development of such lands by the state for the public good will be of greater benefit to the community than ownership and retention by private individuals for their own pleasure.

It therefore seems desirable that the State should definitely adopt the policy of securing considerable areas of forest land, so located in the different counties that they may be developed to serve the largest possible usefulness, not only as sources of supply for large timber, but as examples to private owners. A large initial appropriation will be required, and funds will be needed for maintenance until all the tracts can be placed on a self-supporting basis, but under proper management they should eventually return the original investment with a reasonable profit. Meanwhile nothing will more rapidly advance the welfare of Connecticut forests as a whole than such an extensive, practical demonstration of intensive forestry methods and their results.

WALTER O. FILLEY,

State Forester.

## THE ESSENTIALS OF SOIL FERTILITY.

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Taking into consideration the four crops, wheat, rye, barley and oats in the years 1879 to 1909 Germany increased its crop production per acre of these cereals eighty per cent. In the United States during the same thirty years the increase for the same cereals was 6.6 per cent. These facts point to a very significant difference in the management of land in the two countries. Germany has learned its lesson in farming, this country evidently has not. Germany is cultivating its soil. The United States is mining its soil.

The first and greatest need of man is food, the second clothing, and the third shelter. The first two greatest needs of man are supplied by the industry of agriculture. Agriculture is then the most important and most necessary business of the world.

Agriculture is a manufacturing proposition and how short sighted it is to expect to manufacture foods without first supplying the raw products to the soil out of which the food of man must be formed. Farming is an industry which effects not only the farmer but all mankind. If the farmer is prosperous all business is prosperous. Agriculture is the foundation of all civilization.

The purpose of this article is to benefit the farmer first, and indirectly all consumers of his products. The broad view taken of this subject is to show how, in the most economic manner, soil fertility may be not only maintained but increased from year to year with the least possible outlay for the elements of plant foods.

The problem before us is to consider the means and methods of obtaining the four elements, Nitrogen, Phosphorus, Lime and Potassium, which must be supplied in systems of permanent agriculture. These have become of commercial importance because in agriculture where crops are removed from the farm these are the first to disappear from the soil. Any system of agriculture that does not pro-



vide for the replacing or liberating of these four elements will be nothing but a system minus the agriculture. It has been stated that a crop in one year takes from the soil two per cent. of its Nitrogen, one per cent. of its phosphorus, and one-fourth per cent. of its potassium. From these facts it will be seen that in fifty years the nitrogen will have entirely disappeared. In one hundred years the phosphorus will have disappeared, and in four hundred years the potassium will have disappeared. Since New England agriculture has been in operation for more than two hundred and fifty years and no really adequate provision has been made for the diminishing elements, there must be a very serious deficiency of these elements.

#### Nitrogen.

This is the most costly of the elements, the first to disappear and the least in supply. Its cost is from fifteen to twenty-five cents a pound, so that to depend on the commercial supply of nitrogen would make farm products so costly that no profits could be realized. If commercial nitrogen were supplied to furnish all the nitrogen a fifty bushel crop of corn would require, which would be seventy-five pounds, in a complete fertilizer, this would cost more than the crop was worth. If the Chile beds of Nitrate of Soda gave out and the other organic sources of nitrogen, we would still have an inexhaustible supply in the atmosphere, four-fifths of which is nitrogen. Above every acre is seventy-five million pounds, worth fifteen million dollars. In order to get this nitrogen from the air we have to make use of the bacteria in the root nodules of the legumes. They will get this nitrogen for us without charge and pay a good price for the privilege of giving it to us. As Dean Davenport says, "They not only work for nothing and board themselves, but pay for the privilege." This fact opens to us the most optimistic phase of agriculture. We can get our nitrogen, the most costly and most necessary of the elements, for nothing. Even better than this, a large profit is realized above the value of the nitrogen. Two examples, one in Germany and one in the United States, will suffice. In Germany a farmer started with a very poor coarse grained soil. By the use of

lime, phosphorous and legumes he built into that soil in twenty-five years five thousand pounds of nitrogen per acre, worth one thousand dollars. This was left after the large and profitable crops had been harvested year by year. That thousand dollars was what the bacteria paid above their work and board for the privilege. A farmer in the eastern United States purchased a farm that produced only forty tons of hay. By the use of lime, phosphorus and alfalfa he took from the farm in one year twenty-two hundred tons of hay. In one year the bacteria in the root nodules of that alfalfa fixed twenty-two thousand dollars' worth of nitrogen. This is what these bacteria paid for their privilege. By the use of legumes inoculated with the right kind of bacteria the nitrogen problem is solved. By careful rotation of legumes with other crops the nitrogen supply can be permanently maintained.

#### Lime.

From experiments continued over sixty years it was demonstrated that there was a loss of lime from cultivated soils ranging from five hundred to one thousand pounds per acre per year. For this state during the time the soil has been cultivated about seventy-eight million tons of lime has run out into the ocean through its river systems. This means that if no lime has been supplied to the soil the lime is so deficient that it is one of the serious limiting factors in crop production. Not only is lime a stimulant to the growth of bacteria, a neutralizer of soil acids, a means of fixing nitrogen, a means of liberating potassium and phosphorous, and a cause of the accumulation of organic matter, but it is one of the important fertilizer constituents. The structure of plant tissue needs lime as much as the animal body needs lime for its bony structure. The use of commercial fertilizers containing acid phosphate, ammonium sulphate, and muriate of potash tend to make soils more acid and cause a much larger waste of lime out of the soil.

#### The Kind of Lime to Use.

In general the best lime to use is the crushed raw limestone. The size should be what will pass through an eight mesh sieve. This will contain a lot of fine and all sizes of

grains to the size of a wheat kernel. The greatest loss of lime is by leaching. Carbon dioxide of the soil dissolves the lime into bicarbonate of lime which is soluble and therefore runs out of the soil in the drainage. The philosophy of using this kind of lime is that the fine lime will be for use the first year, the next larger grains the second year, the next larger the third year, etc., so that the larger grains will be for use the sixth year after application. In this way the lime will be conserved and much less will leach away. It is all nonsense to use fine lime because it costs much more to crush it fine and it leaches out of the soil so rapidly. Two tons per acre in six years is about what is needed for ordinary crops. If lime is used for alfalfa or clover larger initial amounts of lime are required. This kind of lime can be used at any time and in any amount and with any substance. It can be used in the stable if the manure is carted to the fields and not allowed to stand in piles for a long period of time. Lime can be purchased for \$1.50 per ton at the quarry. The railroad has agreed to cart it in full carload lots for five cents a hundred pounds west of Connecticut River and for six and one-fourth cents a hundred east of the Connecticut River. This will secure lime at the railroad station for \$2.50 to \$2.75 per ton. To keep a supply of lime on hand in an acre will cost only \$.83 per year.

#### Phosphorus.

Original soils before cultivated by man contained about twenty-two hundred pounds of phosphorus per acre to the depth of seven inches. In our system of farming this element has been taken from the soil and no provision made for replacing that taken out. Suppose the best land in America has been cropped for two hundred and fifty years and that a fair crop of corn or any other crop has been sold containing nine pounds of phosphorus per acre per year. In that time then we have taken out 2250 pounds of phosphorus fifty pounds more than it originally contained. Lack of phosphorus in soils lead Professor Hopkins to say, "Phosphorus is the key to agriculture." James J. Hill was lead to experiment on the use of phosphorus and found that applications of phosphorous greatly increased crop production. Connecti-

cut soils in general have less than half the necessary supply, so the problem of paramount importance to agriculture is to get phosphorus into the soil from the cheapest source. For the past two hundred and fifty years the soils of Connecticut have lost by selling crops from the farms about 1,050,000 tons of phosphorus. During the next six years there will be needed 21,000 tons of pure phosphorus to establish agriculture on a paying basis. This amount would be contained in 168,000 tons of good quality floats or natural rock phosphate. The philosophy of the use of insoluble phosphorus is to stock the soil till there will be enough available, in each year, for the demands of the crop. The most insoluble phosphorus, when there is plenty of organic material for the growth of large numbers of bacteria, will be abundantly liberated for the growing crop. In general one per cent. of the insoluble phosphorus in the soil is liberated each year, or made available for the growing crop. A ton of floats, natural rock phosphate, containing sixty-two per cent. of tri-calcium phosphate has two hundred and fifty pounds of pure phosphorus, and in addition to this five hundred pounds of calcium. This calcium which is equivalent to twelve hundred pounds of lime is never considered in the purchase of floats, but the fact nevertheless is true that for every ton of floats applied to the soil there is really added at the same time twelve hundred and fifty pounds of lime. For every five tons of floats there are three tons of lime. Floats can be purchased at the mines in Tennessee and shipped by the purchaser to his own farm, deducting \$1.80 worth of lime which it contains in a ton, for two and three-fourths cents a pound for pure phosphorus. In general to purchase phosphorus, in bone products and acid phosphate, a price of ten to twelve cents a pound must be paid. Sometimes pure phosphorus in a complete fertilizer costs from fifteen to thirty cents a pound.

It is a very fortunate thing that phosphorus is so firmly locked in the soil and is so insoluble for this entirely prevents its leaching out of the soil. This makes it possible to stock a farm with phosphorus so that it will last for twenty years and at the expense of only one application. The in-

come from phosphorus applied as floats nets about seven hundred per cent. interest on the investment in increased crop production. To supply phosphorus year by year as much as is needed to keep the supply ample requires an outlay of only twenty-five cents per acre per year. This is a most marvellous revelation, and every farmer should think long and carefully on these facts, facts which have been demonstrated by experiment stations, individual farmers, and scientific demonstration. Floats, organic matter, and bacteria will solve the phosphorus problem perpetually. The government seeing the vital need of preserving so necessary a substance as floats, should prohibit its export from the United States.

Basic slag is the next cheapest source of phosphorus and along the Atlantic coast near the ports this can be used with profit. The phosphorus in this costs from five to seven cents a pound compared with two and three-fourths to three cents a pound compared with two and three-fourths to three of phosphorus but it is the most expensive. The effect of bone meal on the soil is better than phosphorus from any other source. Raw bone meal contains about eighty pounds of nitrogen per ton and one hundred and eighty pounds of phosphorus. Steamed bone meal is more readily available. It contains two hundred and fifty pounds of phosphorus per ton and a very small amount of nitrogen.

#### Organic Matter.

There are two great sources of organic matter in the soil; first, the animal fertilizers on the farm and, second, plowed under crops and crop residues. This is very essential as food for bacteria, timber out of which new plants are built, an absorber and holder of moisture and warmth. In its decay by nature are furnished the chemicals that make insoluble natural rock phosphate or floats soluble, that attacks potassium in the form of silicates and frees it for the use of plants.

#### Animal Fertilizers.

It is a very serious fact to learn that in the United States \$5,000,000,000 of animal fertilizers are allowed to go to waste for lack of proper care and conservation. If this

lost material could be applied to the soil it would produce twenty dollars' worth of food for every individual in the United States, or it would feed twenty million people continuously. Let us consider this fact in this state. It is estimated that in the state of Connecticut two million dollars' worth of animal fertilizer are lost in a year. If this could be saved and applied to the soil it would raise eight million dollars' worth of crops or enough to feed eighty thousand people continuously. To augment this serious and vital loss the farmers of Connecticut pay two million dollars for commercial fertilizer which contain only eight hundred thousand dollars' worth of value.

The losses that this product are subject to, are leaching and fermentation. Oftentimes leaching will take from it half its value, and it is possible that fermentations will destroy half the remainder. The very best method to prevent any loss from this material is to get it into the soil soon as possible where it will retain its fertilizing properties and mineral composition when supplemented with lime and phosphorus. If it must be stored a water tight cement pit in which it is well pressed down is the best method.

The second method of adding organic matter is to plow under legume crops. In this way three times as much material will be added to the soil as if the same crop were fed to cattle and the residue returned to the soil. The use of leguminous crops adds more organic matter than any other source. Even if the crops are harvested the crop residues are large and accumulate year by year. A good crop rotation is an abundant source of adding humus and organic matter to the soil. Inoculation of root nodule bacteria to specific legumes is the greatest source of organic matter.

### Complete Fertilizers.

Complete fertilizers are essentially "patent soil medicines" or "soil stimulants." For continued soil fertility they are deficient in nitrogen and potassium. They contain barely enough phosphorus for the immediate crop. When a complete fertilizer is added there is furnished about five pounds of nitrogen. The crop needs seventy five pounds of

nitrogen. At this rate it would not take long to use up all of the nitrogen in the soil.

In the discussion of phosphorus it was found that twenty-five cents would keep a phosphorus supply continuously. This added to eighty-three cents for lime makes a total of \$1.08 per acre per year which will perpetually supply these two very important elements of soil fertility. When these two compounds are perpetually supplied to the soil the legumes will grow, the nitrogen supply is secured and organic matter is grown in large amounts, accumulation of soil fertility increases year by year till a permanent and perpetual agriculture is established.

Farming is a manufacturing process and it is a very poor and foolish policy to withhold the necessary raw materials out of which large crops can be produced, or to run the soil to half its capacity for lack of food material when a full crop can be raised when the right amount of the necessary raw materials are placed in the soil.

W. M. Esten.

Bacteriologist, Connecticut Agricultural College.

## AGRICULTURE IN THE SCHOOLS of MANSFIELD & LEBANON.

Much is being done for the boys and girls in the city through the public school and trade school to give them work of a practical nature that will make them more efficient citizens. The boys and girls in the country have not had this opportunity to learn any kind of a trade unless they left home and went to the village or city.

With the idea in mind that an educational system is more effective if built up around the life activities of a child and therefore more interesting and profitable to the child, agriculture has been introduced into the curriculum of the schools of Mansfield and Lebanon as a regular school subject.

The State Board of Education in co-operation with the Agricultural College started an experiment in the town of Mansfield, requiring agriculture as a regular part of the school curriculum. The work proved of sufficient merit to warrant its extension. Accordingly, in December 1913, similar work was taken up in Lebanon. This is developing as favorably as the work has in Mansfield, but as the work in Lebanon has not been carried throughout the entire cycle, this account deals more especially with the work in Mansfield.

An Agricultural Supervisor is employed to direct the work in the school and as far as possible the home activities of children who are willing to take up some kind of home work.

Weekly visits are made to each school and the work of the week reviewed, sometimes experiments performed and the lessons outlined for the coming week. There are sometimes mistaken ideas drawn from the lessons that the teachers cannot help the children with; these the supervisor tries to rectify. Sometimes this weekly visit is taken up in a discussion of a phase of the lesson that bears directly upon the life and practices of the community.

All children above the fourth grade are taken into one class for the agricultural work. A four year course of study



is used so that no pupil unless unpromoted, covers the same work in the schools.

Correlating of agriculture with the other studies lends added interest to the school work, this being done as far as practicable.

The work given in the school always bears upon the agriculture of the town. Children are not encouraged to criticise home conditions but they are encouraged to have "Agricultural Ideals." The work is made practical as far as possible and children are urged to take up some kind of directed home work.

Most of the children in the schools are greatly interested in the study of agriculture and do a great deal of work outside of their assigned lessons in school. About eighty per cent. of the children taking agriculture in the schools carry on some directed home work.

During the past year special emphasis has been placed upon corn club work and a Boys' and Girls' Agricultural Club has been organized in Mansfield as an outgrowth of this work. The club was organized in July 1913, and early in 1914 held a corn show. At such times the boys are called together and a survey of the season's accomplishments presented to them together with talks on "How to Grow Better Corn Next Year" and kindred topics.

The object of this agricultural club is to help improve the agricultural condition of the town of Mansfield.

Besides the growing of corn, children have grown about every farm crop and cared for all kinds of farm animals as part of their home work.

At present there are five club activities that are receiving special attention: corn, potato, garden and canning, poultry and dairy clubs. Of these clubs the poultry club seems to be the most popular as the requirements are less than with the other club activities.

Visits are made to the home plots as frequently as time permits and between visits many questions are answered by letter. Through the visitation of the home plots the parents are met and are often helped in an advisory way, about farm problems that are troubling them. Many farmers are adopting

better methods of farming as a result of the accomplishments of their boys and girls and are thereby making greater profits for themselves.

As a general thing most boys and girls have their regular work to do on the farm that keeps them busy most of the time. The idea of the home work is not to increase the amount of work done by the children but to have it directed in such a way that it has an educational value. Corn is grown on most every farm and it is not necessary for a boy to have an additional plot to belong to the corn club; he may raise a plot of the usual acreage. One point that is strongly emphasized is that a record shall be kept of all expenses and proceeds in order to place the work on a business basis. For this purpose record blanks are furnished.

Most of the boys and girls who did well with their work last year have taken up additional home work this year and show an additional amount of interest.

Some of the benefits of home work aside from the financial returns are:

Boys and girls are more contented at home when they have something of their own.

Boys take greater interest in farm work.

Girls are more interested in home.

Vitalizes school work.

Directs the natural energy and spirit of competition into constructive avenues.

Dignifies labor.

Teaches better methods.

Takes drudgery out of farming.

Develops resourcefulness, reliability, originality, purposefulness in young people and leads to right growth and civic development.

Many boys have made their home work very profitable and have become aware that there is a chance for them to make money on remote farms by a little planning ahead.

In order to develop the idea of responsibility and ownership, prizes such as registered calves and pigs, pure bred poultry, and fruit trees have been given, prizes of this nature being preferable to cash.

The boys and girls who carry on directed home work, write compositions bearing upon this work with greater ease and efficiency than previously, due to the fact that they have a fund of definite, practical information about definite work.

Some boys that would otherwise have left the farm are remaining in the town to help develop the town and in the meantime save as much money as their city cousins. Others are looking forward to the time when they will be old enough to attend the agricultural college.

As an experiment the work has proved a success and can be duplicated in any rural town in Connecticut.

Much advice and help has been received from the faculty of the Connecticut Agricultural College, which with the earnest efforts of the teachers and the co-operation of the parents has helped to make the work in Mansfield a success.

A. J. BRUNDAGE.

# ANNUAL MID-WINTER MEETING AT HARTFORD

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## PROGRAM.

**Tuesday, December 16.**

- 10.30 a. m. Formal Opening.** By Vice-President Wilson H. Lee.  
**Address and Invocation.** By Rev. Charles T. Carter.  
**Address of Welcome.** By His Honor, the Mayor L. R. Cheney.  
**Response.** By His Excellency, Simeon E. Baldwin,  
Governor of Connecticut.

- 11.15 a. m. Address—Alfalfa.**  
"Some Things That Make for Success in the Growing of  
Alfalfa." By Prof. H. J. Wheeler of the Agricultural  
Service Bureau for New England.

**Intermission.**

- 1.30 p. m. Meeting called to order.**  
**Address—Dairying.**  
1. "Selecting the Dairy Cow, and the part the Dairy  
Sire has in the Establishment of a Herd."  
2. "Does it Pay the Average Farmer to Raise the Heifer  
Calf?"  
• By the Hon. Hugh G. Van Pelt, Editor of the "Kimball's  
Dairy Farmer," Waterloo, Iowa.

- 2.30 p. m. Address—Rural Credit, Banking, Co-operation.**  
"Rural Credit, Banking, and Agricultural Co-operation in  
Europe."  
By Hon. J. Lewis Ellsworth of Worcester, Mass.

**Intermission.**

- 7.15 p. m. Music by the Orchestra.**

- 7.30 p. m. Address—Education.**  
"Elementary School Education for Rural Schools."  
By Miss Mabel Carney, of Illinois State University.

- 8.15 p. m. Address—Problems of the Rural Church.**  
"Future of the Rural Church, and Some of its Problems."  
By Rev. Warren H. Wilson, D. D., President of the  
Missionary Education Movement of N. Y. City.

Wednesday, December 17.

9.30 a. m. Music.

9.45 a. m. Meeting Called to order by Vice-President Wilson H. Lee.

Address—Raising Feeds For The Dairy.

1. "Raising of Solling Crops."

2. "Would it Pay the New England Farmer to Raise His Own Corn, Oats, Barley and Possibly Wheat?"

By Hon. Hugh G. Van Pelt, Editor of the "Kimball's Dairy Farmer," Waterloo, Iowa.

10.45 a. m. Address—Sheep.

"Sheep From Day to Day." By Prof. J. B. McLean, Amherst Agricultural College, Amherst, Mass.

Intermission.

1.30 p. m. Address—Market Gardening.

"Essentials of Success in Market Gardening." By Hon. H. M. Howard, Proprietor of Dix Farm, West Newton, Mass.

# PROCEEDINGS.



REPORT OF THE  
PROCEEDINGS OF THE ANNUAL  
MID-WINTER MEETING OF THE STATE  
BOARD OF AGRICULTURE

1913

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Tuesday, December 16th, 1913. 10.45 A. M. Music.

Meeting called to order by Vice-president Wilson H. Lee.

THE CHAIRMAN: I will call upon Rev. Charles F. Carter, to invoke the Divine Blessing.

REV. CHARLES F. CARTER: I would ask, in connection with these devotional services, to say also a word, because I believe that the farmer, if called into co-operation with God, and if God takes us men, as we work in the fields, into co-operation with Himself—I feel that the farmer really needs a preacher less than almost any other man, because his calling ought to teach him how to preach sermons to himself—sermons on co-operation, sermons on fidelity and patience. And it has taught, especially in our day, the farmer to get a view of life that shall teach him that nothing is won apart from obedience to law. That is a great undertaking, to understand God's laws better, in order that we may more scrupulously observe them. And so that text would unfold in my mind as a plain sermon, that the farmer, if he is alive to the spiritual meaning of things, will be preaching to himself, Fidelity, Co-operation, Obedience to Law.

We look to Thee, our God and Father, for every blessing. We pray that all the interests that are represented here may be dear to Thy heart; that in the deliberations of this session there may be wisdom. Amen.

THE CHAIRMAN: Connecticut takes a pride in this beautiful city of Hartford, and I feel that we are all interested to see her well governed, and it has been a great



deal of pleasure to us that the city of Hartford was fortunate enough to elect the Colonel as Mayor. The name of Cheeney in this state stands for thrift, industry, integrity and a faithful attention to duty, and those characteristics are well exemplified in his Honor the Mayor, whom I take great pleasure in introducing to you, Mayor Cheeney, gentlemen.

**MAYOR L. R. CHEENEY:** Mr. President, your Excellency, and Members of the State Board of Agriculture: It is a very great pleasure to me to be given an opportunity to greet you at this time and to offer you a welcome to the Capital City of your state, and to wish you very great success in your deliberations on this most important subject of Agriculture in the state of Connecticut.

I have not been a farmer; I haven't been much of a "book farmer," although I have been very much interested in the subject, and especially of late, when I see, more and more, how important it is for the people of the whole state that the farmer should be encouraged as much as possible; and I always feel that the more we do for the farmer the better food we get to eat; and you know that some of us "eat to live", and lots of us "live to eat". I am speaking of farming, of course, in the case of actual raising. I saw in the paper the other day that a milk-man was chided by the housewife for not getting around early with the milk. He was very late that morning, and he apologized; "well", he said, "The Board of Health have been getting after me, they say there is too much bacteria in my milk; they say there ought to be only 250,000 to a quart, and I was so busy counting the little devils this morning that is what made me late". (Laughter)

You are all acquainted with the high cost of living, but not perhaps with my efforts-humble and handicapped though they be—to substitute the word "lower" for the word "high"; so that gives me an excuse to tell you about them. One of the first matters I considered after my election almost two years ago, was the possibility of a reduction in the price of foodstuffs, through the agency of a public market. My efforts ran against a snag during the first year, inasmuch as the finances of the city were more needed along other lines—the committee appointed to consider the project of a public market so concluded. A new committee was appointed during the second year, but it has not yet succeeded in even organizing for work, which would seem to point out that public interest in the subject is somewhat lax and apathetic. However, I have hopes that the committee will get together before long and make recommendations in the matter.

The work of the city in establishing a public market, however, would be but half of the work necessary to lower the prices of food necessities. The farmer must be encouraged, and I look to the public market to help the farmer, inasmuch as it will bring him into more direct contact with the consumer. Thus it will be a sort of mutual aid plan.

Increased cultivation of the fertile valley in which our city is situated, is certain to result. Connecticut was originally an agricultural state. The migration to the cities has depopulated certain sections, particularly in the western part of the state. The problem of feeding Connecticut mouths with Connecticut products only—and having enough to go 'round—will be solved only when Connecticut people are taught and encouraged to make the most of the farming industry.

Prof. E. H. Jenkins, director of the Connecticut Experiment Station of New Haven, says that "Connecticut, well tilled, will feed all of Connecticut and part of Rhode Island". "Connecticut intensively tilled", he continues, "will feed all of New England, outside of Boston, and the major portion of that city. Her hills alone are capable of producing the beef needs of Connecticut, Rhode Island and most of Massachusetts". So there you have the opinion of a man who is certainly no neophyte in the farming business.

Of course, to bring such conditions about, there must be other things looked after. The transportation system must be developed to its highest degree of efficiency; this is very important. Furthermore, the farmers must practice the new farming—the scientific farming. I believe that all public funds appropriated by the state or nation for the development and encouragement of the farming industry, is money well applied, for the reason that the more we help the producer, the greater the ultimate benefits to the consumer.

And then again we must point out to our young men in the rural district, that it is not necessary for them to go to the cities in order to achieve success. Success can be attained at home on the farm. It is all very well to have ambitions, but a youth is not necessarily ambitious when he rushes off to the city, unprepared and more or less unhappy, and ekes out a meager living at a trade entirely unsuited to him, whereas, if he stayed at home and applied the same energy to farming, he would have made a success of himself and have done his duty towards civilization.

The salvation of the farmer should lie in co-operation—in the co-operative marketing of his products, and we of the cities must take care of the greater burden of the marketing.

Gentlemen, I wish you great success in your deliberations.

THE CHAIRMAN: I have the honor, for the third time, to introduce his Excellency to a gathering of this kind, and I do it with a great deal of pleasure.

GOVERNOR BALDWIN: Mr. President, Your Honor, and ladies and gentlemen, fellow citizens.

I was glad that this meeting was opened with a reverential note, a note which spoke of the real, intimate relations between the farmer and what we often hear called "nature" when it really is God.

You recall that line of Shakespeare where he speaks of one who can see "Sermons in stones, books in the running brooks, and good in eeverything". No man, except possibly a frontiersman, has the opportunity which a farmer has, to let the pages of nature interpret themselves to him. Books, sermons and good!

You belong to Connecticut, you need no welcome to our capital city; it is the center of your political home, your state; but I am glad the state is represented here; I am glad she sends our Governor to meetings of this character and makes him President of the State Board of Agriculture—it shows that Connecticut is vitally interested in whatever concerns farming, and is willing to give funds from the treasury of the state which will aid its service.

It might be thought that a December day—a day of frozen fields and frozen pools, was a poor time for a meeting of the farmers of the state. One likes to be able to put in practice on the moment, what he hears in a gathering like this, and what seems to be of good promise.

But this December weather is the farmer's time for thinking over things. The busy time of the year for thought and reading and friendly conference has come. I am not sure but that in the end, the winter may be made to the farmer the most important time of the whole year. A man's success in manufacturing does not depend upon the amount of his products or his sales. It depends on whether what he produces be produced within a cost that will enable him to profit by his sales. Many a manufacturer has gone down to ruin because he had not made out proper cost sheets or had not studied with due care what each cost sheet showed him. So with the farmer. There is a profit in raising peaches on one kind of soil and location and none in trying to raise them on another. We used to plant our orchards on low ground. Now, I believe it is agreed, that the best crops come from those planted on high ground.

The profit in poultry may depend entirely on the number of fowls you keep and the help that the women of the family

can give in looking after them. The tariff laws have got to be studied for some things, and the prices here of foreign products. We used to raise mulberry trees in Connecticut and breed silk-worms. It paid once. It does not pay now. Foreign importations practically bar out domestic competition in raw silk or cocoons.

Here, at meetings like this, will always be found men who can answer questions on all such points. They can tell a farmer who explains to them what kind of a farm he has got— and better still, our travelling agent, to whom a farmer shows his farm, can tell him what will be his best line of production, and what line of agriculture to pursue.

This is a question that interests the whole state. The agriculture of a country is its surest and most lasting title to wealth-prosperity. What Napoleon wrote to George III a hundred years ago and more is true still; "Finances founded on flourishing agriculture can never be destroyed". Where did the immense sum of money come from to redeem France from the power of the enemy? From the savings contributed by the small farmers of France.

Agriculture in the United States, as a whole, is flourishing, we all know. Our financial strength, therefore, as a country, is great. Under our constitutional guarantees of free trade between the states, Connecticut has the benefit of the great grain fields and cattle ranges of the west. For one day's wages a Connecticut mechanic can transport by rail to his home station a year's food for his family—one day's wages will pay the freight. This being so, our farmers can't raise much wheat, and I dare say they never will. As yet they are not raising much livestock for the butcher, though it looks to me as if it were about time to start again in that business, once so common and so remunerative in western Connecticut. What the Connecticut farmer can raise with the best results is often a problem to be differently answered in different years, and to be differently answered by different people. Take, for instance, our Jewish friends who have come to this state within the last few years, in Fairfield and Colchester. Several of these Jewish communities are closely associated one with the other, and they are engaged in intensive agriculture on borrowed capital. It works well with them. I am not at all sure but it would work well with those of American birth. These Jewish communities are borrowing money from the Hirsch family, or one of the subsidiaries of the Hirsch family, at a very low rate of interest, for their capital, and then they lend it out to each other at a higher rate of interest. They are redeeming parts of old towns in Connecticut that had gone to seed, by their intensive industry.

Meetings like this help to answer questions of this general nature; and let me, as President of the Board of Agriculture, urge you men who are here, to aid us when these experts take the stand, by asking questions. You will all have the opportunity, and I hope that you will be sure to find out just what you want to know, from those who can tell you, on this platform; men who I am sure will be only too happy, each in his proper field of knowledge, to give plain answers to plain questions.

**THE CHAIRMAN:** The next subject on our program, to my mind is one of the most interesting and profitable subjects of discussion that we have in our state. I recall the time some years ago when we started the growing of alfalfa and made the usual failures that come with inexperience, but I am pleased to say that the contrary has proved true in my own locality. It thrived last summer, even with the severe drought, and my own fields trebbled the hay crop that had been raised on the fields that had been in other grasses. Now there is no question but what we can raise alfalfa in Connecticut, and raise it successfully. I am sure that you will be very glad to listen to Prof. H. J. Wheeler, of the Agricultural Service Bureau, Boston Mass., on this most interesting subject to the farmer, alfalfa. Prof. Wheeler.

(Applause)

**PROF. H. J. WHEELER:** Ladies and Gentlemen: The time has come in this country when the great western ranges and cheap beef cattle have become a thing of the past. The only hope of keeping beef so low in price that the working people can use it is based upon the successful and general introduction of alfalfa. When its value has come to be realized as it has in Europe, it will be designated here, as it is there, the "Imperial Forage Crop".

Something must be done to educate the people in New England to the fact that milk is worth much more as food than they have been paying for it, and that the farmer cannot produce it profitably at the low prices which have prevailed, even with the aid of alfalfa. The introduction of alfalfa would nevertheless, be the greatest boon conceivable, to the dairy industry of New England. The dairy farmers of the Middle West are just awakening to its enormous value. Groups of alfalfa lecturers are being sent by automobile and railway train to every section of the middle western country to spread the gospel of alfalfa. Pennsylvania, New York, New

Jersey and New England have been behind the procession, but the organization of the New England Alfalfa Growers' Association on July 3rd, 1913, followed shortly thereafter by the organization of the Worcester County Alfalfa Club, and the splendid meeting of the New England Association recently held at Springfield, Massachusetts, give promise of a thorough awakening.

Kansas is at present raising nearly a million acres of alfalfa, representing one-fifth of the entire acreage of the United States. In New Jersey, in three years, the acreage has increased from 1,000 acres to nearly 5,000 acres. The introduction of the alfalfa crop into Kansas transformed the state into a prosperous one agriculturally. It is indeed said that "Not until the barren fields of Utah and Colorado were made fertile by alfalfa, could potatoes and melons and apples be profitably grown in those states".

In contrast to the million acres of alfalfa grown at present in the single state of Kansas, and to the five million acres grown in the entire United States, it should be remembered that there are but 218,000 acres devoted to this crop east of the Mississippi River. From what has been said it must be evident that the great hope of New England for the future of its dairy industry centers about this wonderful crop.

There are several points which are of the utmost importance to those who wish to succeed in growing alfalfa.

#### The Sort of Land to Select

The land should slope so that water will not stand and freeze over the surface. If there are "pockets" or depressions, grass seed should be sown in those places. The surface of the soil should be worked until it is even and in splendid condition to receive the seed.

#### Precautions in Seeding.

If the soil is light and fluffy at the time of seeding, it should first be rolled and then loosened slightly with a smoothing harrow or heavy weeder, before the seed is sown, in order that it may not be buried too deeply.

#### Conditions Below the Surface.

Alfalfa sends its roots deep into the soil, and hence it is of the utmost importance that there shall neither be impenetrable hardpan nor ledges within from three to four feet of the surface. It is equally important to avoid land where the water-table is within three to five feet of the surface.

#### The Importance of Liming.

No one should attempt to grow alfalfa without first ascertaining whether the soil is in need of liming. If lime is lacking, its application is the first essential to success. In

general, soils which need lime should receive from 2 to 4 tons of ground limestone or high-grade marl per acre. These are the best forms of lime to use on all light, sandy, gravelly soils which are likely to suffer from draught. If a soil is very acid, and especially if it is rich in acid organic matter, it may be preferable to use slaked lime for the first application, at the rate of  $1\frac{1}{2}$  to 3 tons per acre, for this form quickly and efficiently corrects the acid condition of the soil and insures a full stand of alfalfa at the outset. Experiments in Rhode Island conducted in every township of the state, show on the average nearly half a ton per acre larger yield, the first year after seeding, where slaked lime was used, than following the application of the same amount of lime in ground limestone. In special cases, where the acidity was great, the gain was even far greater from the use of slaked lime as compared with ground limestone. In all cases the lime should be spread after plowing and harrowing once, and it should then be most thoroughly harrowed into the soil. The longer this can be done before the seed is sown, the better it will be in all cases regardless of the kind of soil, and the kind of lime. Hence, when seeding in the late summer, the lime should be harrowed in just as soon as the land is turned over, so that by successive harrowings, it may be thoroughly incorporated with the soil.

#### The Use of Farmyard Manure.

Where farmyard manure is available, it may be spread and plowed under for the alfalfa crop. The objection to its being harrowed into the soil is that it frequently adds a lot of weed seeds to the surface, and furthermore, it often interferes with securing a satisfactorily smooth and even seed-bed, particularly when the manure is coarse. It is a waste of nitrogen, and poor economy to top-dress alfalfa with manure, because its nitrogen is not needed by the plants after once becoming established.

It must be borne in mind that no soil is too good for alfalfa, and it responds in proportion to the generosity of the previous manurial treatment and the tilth or condition of the soil. The splendid physical condition indicated by the word "tilth" is so important that it cannot be overestimated, and this, manure promotes. Nevertheless, from two to four crops of alfalfa hay per acre can be grown on many of the light soils, even in poor tilth. Under ideal conditions, however, crops of from six to ten tons per acre are impossible.

#### Fertilizers for Alfalfa.

In seeding to alfalfa on soil which is rather poor, a complete fertilizer, containing a fair amount of nitrogen from

suitable sources, and generous amounts of available phosphoric acid and potash should be used in all cases. This should be harrowed into the soil very thoroughly before the seed is sown. No further application of complete fertilizers is necessary unless the crop the next spring is particularly poor and needs special encouragement. Subsequently, a proper mixture of acid phosphate and muriate of potash or sulphate of potash is all that is required.

Mention is made of acid phosphate in particular, because it is immediately soluble in water and can be carried to the roots of the alfalfa plants at once; whereas, the phosphoric acid of basic slag metal is not quickly soluble when spread on the surface of the land. In fact, the application of this year comes into play chiefly the next year. In consequence, the interest on the money invested is partly lost the first season. The muriate of potash, which is the cheapest form of potash can be used with safety wherever the land has been amply limed. If lime is lacking, the high grade sulphate of potash, or, the double manure salt would be the safer form of potash to apply. These forms are, however, open to the objection that they are not dissolved with great readiness and hence if but little rain follows their application, the benefit derived from their use is not as great as with muriate of potash.

#### The Type of Alfalfa to Grow.

The choice of the type of alfalfa is of great consequence. The common alfalfa has the prominent tap-root and dark purple blossoms. While ideal for growth in some parts of the United States, it is not sufficiently hardy for use in New England. In order to best meet our conditions one should use the "Grimm," or some of the other variegated types of alfalfa which have been introduced into this country from northern Europe and which have proven hardy in the Northwest. Seed from Dakota, Montana and Minnesota is particularly to be recommended, provided it has been saved from strains of alfalfa of the character mentioned. Some of these recent introductions have the habit of throwing out many roots from the crown instead of a single tap-root, on which account they are much better able to resist heaving by the frost than ordinary alfalfa.

#### The Amount of Seed to Sow.

The quantity of alfalfa seed recommended in various parts of this country ranges from six pounds per acre to from thirty-five to forty pounds per acre. If the seed is drilled in with one of the machines such as is commonly used in the Middle West, from twelve to sixteen pounds



per acre will go as far as from twenty to twenty-two pounds if broadcasted. It is, of course, possible where the condition of the soil is ideal and the seed bed perfect, to secure a sufficient stand with perhaps two or three pounds less of seed than has been mentioned, but the crop is so valuable, and a full even stand is of such importance, that one should not attempt to be parsimonious in the use of seed. On the other hand, it is extravagant to use from thirty to forty pounds when a good stand can be secured with twenty pounds after the soil has been properly prepared.

#### The Time to Seed Alfalfa.

There are only two times of the year to seed to alfalfa in New England, notwithstanding the suggestion of a recent speaker in Massachusetts, who said that it could be sown in May or June. In other words, alfalfa seed should be sown the first day it is possible to work the land in the spring so that the plants may come up and shoot ahead of the weeds, or else, seeding should be delayed until from the first to the fifteenth of August. In the latter case, it is possible to grow a crop of oats and Canada peas, or, some other early maturing crop, after which the land may be plowed and limed and then harrowed repeatedly, until the proper date of seeding. In fact, it is well to lime also before the oats and peas or other early crop. It is generally advisable in New England to sow the seed without a nurse crop, but if one is used, the choice should be barley, at the rate of about a bushel per acre. For this purpose, the beardless, or Man-shury, barley is to be preferred, for the reason that it does not shade the alfalfa excessively. On a farm where alfalfa is cut and fed green to dairy cows, it is often advantageous to make a seeding in the early spring, for this comes along so as to be ready for cutting following the time of the cutting of the last, the first crop from the fields seeded in previous years. Thus the old field and the new field can be cut alternately throughout the season.

#### The Need of Inoculation.

There is probably no crop grown in New England which is so frequently benefitted by soil inoculation as alfalfa. In many cases, the results from the use of soil for inoculation, or from the use of Farmogerm, have been phenomenal, and have determined the success of the crop after all the other factors have received proper attention. Full directions for the use of Farmogerm, and other artificial cultures, which are used for inoculating the seed, are sent out with the material. In order to inoculate the field, one should take the soil from some location where either alfalfa or the

tall, sweet clover is growing successively and developing nodules on the roots. Such soil should be spread at the rate of from three hundred pounds to a ton per acre. A ton is not too much, if a careless hired man is to make the application. Five hundred pounds, evenly applied, will sometimes give satisfactory results. Owing to the fact that the organism, which enables the plant to develop nodules on the roots and take its nitrogen supply from the air, is greatly weakened or killed, by exposure to the sunlight, it is of the utmost importance that the harrow should follow immediately after the man who sows the soil, in order that it may be mixed with the soil of the field at once. It is obvious, therefore, that a dull day is preferable for this work. There is often great danger of introducing the seed of bad weeds if soil for this purpose is taken from other and distant farms. In using artificial cultures this is avoided.

#### Supplementary Seeding and Harrowing.

Supplementary seeding and occasional harrowing with a spring-tooth harrow, are often essential to securing a full stand of alfalfa and to its subsequent maintenance. One of the best times for sowing such seed is in the early spring, just as the frost is coming out of the ground. It may also be sown immediately after the cutting of the third crop, although in that case, a spring-tooth harrow should be run over the land before the seed is sown, in order to remove weeds and grass and prepare a more suitable seed bed. It is obvious, that when additional seed is sown in this manner, harrowing should not be resorted to until the plants have attained a sufficient size and root development so that there will be no danger of their being rooted out and injured.

The type of spring-tooth harrow to be used is, preferably one with a round tooth and a diamond point, or, some other type especially adapted to this purpose. The ordinary wide, flat-toothed, spring-tooth harrow is not an ideal implement for this purpose; and, if it is set so as to dig, to some extent, instead of scratch, it is very likely to catch under the crowns of the plants and pull them out, even though they may be from six to eight years old and have crowns from four to six inches across.

Many growers recommend using the spring-tooth harrow after each crop. There may be many advantages in using the harrow with this frequency, although, owing to the danger of breaking off young shoots, there may be a possibility of sometimes overdoing it.

Frequently in the past, the use of the disc harrow has been recommended instead of the spring-tooth harrow, and

it has been advised to set the discs practically straight. It was claimed for this method, that the crowns were split and thus increased in size, and that in consequence they would throw up many more shoots than otherwise. It appears, however, that in our moist climate here in the East, the splitting of the crowns is fraught with great danger, for frequently, where this happens, decay sets in and the plants soon die, as a result of the injury. The disc harrow is also far more likely than the spring-tooth harrow to injure the young buds or shoots.

#### The Time to Cut Alfalfa.

Frequently, it is directed to cut alfalfa when about a third of the plants are in bloom. There is, however, a much better guide in this particular. This is furnished by the buds or new shoots which appear around the base of the old plants. The cutting should be made when these begin to appear in good numbers, regardless of the blooming stage. If these shoots are allowed to become long enough to be cut off by the mower, it will cause very decided injury to the plants, and delay the coming forward of the next crop. If, however, the cutting is done at the right time, so that the machine will pass over these shoots without injuring them, undue weakening of the plant is avoided and the new crop comes forward rapidly.

The speaker is aware that some of the leading authorities on alfalfa advise one never to cut the crop until these buds appear; yet he is of the opinion that there are circumstances under which it may be advisable to cut the crop earlier. One instance is where a very long period of severe drought ensues, which is so severe that the buds or little shoots do not develop round the stalk of the old plant as they should. The leaves, then turn yellow, and drop, and the stem becomes exceedingly woody, and hence, lacking in nutritive value. In such a case one must choose between two evils. The one consists of a great loss in the feeding value of the crop and possible injury to the old plants by their standing too long and, on the other hand, the danger of injury resulting to the plant by exposure to the sun's rays before the new shoots develop. These however usually appear shortly after the cutting is done. A second case of possible injury, where cutting prior to the proper development of the buds or young shoots may be advisable, is when a crop is very seriously attacked by leaf-spot. This is often a very serious disease, and frequently the plants will practically cease to grow, the leaves turn yellow and fall, and the future vigor of the plant is menaced. In such a case, if the mowing machine is run over the field, a new growth will begin shortly thereafter,

which is usually of a healthy character. It is believed that the gain to the plant due to this growth more than offsets any injury caused by somewhat premature cutting. This is known to be contrary to the recommendation of Joseph Wing of Ohio, one of the leading alfalfa authorities in this country, and to those made by certain other growers in the Middle West. The speaker would, therefore, suggest that those who have fields which are affected in this way, make a trial of the two methods of procedure, in order that it may be more fully established which is the better plan under the conditions usually existent in New England. Here is a line of investigation in which every alfalfa grower may perhaps take part in the coming season. It is often a point of importance, in connection with the economic handling of the crop, and one which should be determined for our local conditions.

#### Curing Alfalfa.

The alfalfa crop should be allowed to wilt thoroughly after cutting, after which it may be raked with a common horse rake, or, preferably, one with a side delivery rake. The alfalfa should then be placed in small cocks and these should be covered by hay caps. In fact a man has no business to grow alfalfa unless he will provide hay caps. These cocks should be turned daily so as to bring the alfalfa on a new spot of land and particularly, so that the alfalfa which is in the center of the cock may be brought to the outside, whereby uniform curing results. Some growers unite two or three of these cocks as the curing progresses. If this precaution of turning the cocks is not taken there is liable to be some alfalfa in the center of the cock which is not sufficiently cured, and there is then the gravest danger that this may heat, and give rise to spontaneous combustion, either in the stack or in the barn. The danger of serious loss, when this takes place in the barn, is of course far greater. Two or three losses of this kind have occurred in the east during the past summer, as a result of failure to devote proper attention to this feature of the curing.

If alfalfa is exposed for a long time to the direct rays of the sun, many of the leaves are likely to crumble and fall off; and furthermore, if rain falls on the unprotected alfalfa, its nutritive value is very much lessened by virtue of its becoming less palatable, and also on account of the leaching out of valuable food materials. Some recent investigations of the losses due to leaching during the curing of such crops, have thrown the strongest light on this point; and they ought to be a warning to all farmers, that the hay cap should be

employed to protect even hay, and especially clover and alfalfa, from losses of this kind.

It should be remembered that alfalfa is richer in protein than wheat bran and middlings, and that it is about as valuable as a feed. If we could go into the field and rake up four to six tons of wheat bran per acre at from \$27, to \$30 a ton, we should all get busy! But why not rake alfalfa? Even \$108. per acre looks good, with the small outlay for fertilizer and labor.

In closing, I wish to express the hope that the State of Connecticut will soon be represented by an alfalfa organization of its own, affiliated with the New England Alfalfa Grower's Association, and form a constituent part of it. This organization, although a \*child of yesterday, having been formed on July 3rd, 1913, has already attained its majority, as shown by the enthausistic meting in Springfield two weeks ago, when more than two hundred and fifty farmers interested in this crop were earnest listeners to an inspiring address by Joseph Wing of Ohio. It takes a lot of effort to get our New England people started; but a beginning has been made in the right direction, and with your aid and cooperation here in Connecticut, successful alfalfa culture in our corner of the United states will be sure to become a reality in the near future. Then will the most important step be taken toward maintaining a milk supply at reasonable prices, and towards insuring an adequate return to the farmer for the arduous labor, skill and business ability demanded in the successful conduct of the dairy industry. (Applause)

THE CHAIRMAN: I would like to ask Prof. Wheeler if the harrow has not got to be used to kill the grasses that come in and drive out the alfalfa?

PROF. WHEELER: Witch grasses and Kentucky blue grass are the worst enemies of alfalfa and if you can go in with a suitable type of spring-tooth harrow and get them out, you will certainly do the best thing for the crop.

Q. Where can we secure the spring harrows?

A. I think a good type with round teeth and diamond points can be bought of the Bucher & Gibbs Plow Co., of Canton, Ohio.

Q. Where can we get the Grimm seed?

A. B. Lyman of Excelsior, Minnesota is selling it. Doubtless there are many others. Hardy types can be bought of the Dakota Improved Seed Co., Mitchell, South Dakota who make a specialty of them.

MR. CHAPMAN: Our place runs down to salt water; I would like to ask if alfalfa will do well close to the salt water?

PROF. WHEELER: I don't think there is any reason why alfalfa cannot grow there as long as the water-table is down far enough and provided liming and all the other essential points are given due attention.

Alfalfa is a good crop to put in the silo, but it should not be used alone, because it makes a rank silage just as other leguminous crops do. You should have rye, corn, or Japanese millet or other non-leguminous plants to put in with it.

MR. STANLEY: I would like to ask what treatment you would advise for a field, where the soil is light and sandy and where the alfalfa came up in patches; would you advise going on with a harrow, or the sowing of more seed on it now?

PROF. WHEELER: Just as soon as the frost begins to come out of the ground next spring, sow more seed and then when the moisture is out of the soil enough so that the horse's feet won't tear it up, go over it with a land roller, and this will give you a better stand for the coming season.

MR. STANLEY: I would like to ask what you would recommend to offset the liability of the ground to heave and throw the roots out?

PROF. WHEELER: Of course if you have a heavy clay soil, and lime it with slacked lime, that would cause more or less inoculation of the soil and the heaving would be less than otherwise. There is no treatment which can be given heavy clay soils which will absolutely prevent heaving. In all cases also late cutting is positively to be avoided where heaving results.

MR. LEE: Can you tell me why alfalfa is inclined to grow better on a southern slope than on a northern one?

PROF. WHEELER: I don't believe I can answer that question. I cannot see why it should necessarily thrive better there although of course sunshine is essential to all such plants.

THE CHAIRMAN: I had the pleasure two years ago of attending a land and irrigation show at Madison Square Garden, New York, and as I was going about the show I came to the Montana booth. They had some alfalfa nailed on a board which showed something over 90 inches in growth. There was a glib tongued promoter from that west-

ern country, describing to the gathering around him the great advantages of Montana, and particularly the great advantages it had in raising alfalfa. I heard him for a time, and after he had finished his story and the crowd broke away, I said to him, "Friend, you don't have to go out to Montana to do that; we can raise and are raising just as good alfalfa in the state of Connecticut as you are raising in Montana; and I, from my own farm can show this year as many inches of growth from four crops of alfalfa as you can show on that board." He was greatly interested; he didn't think it could be possible, and he said he wanted to have me meet Dr. Suddith. He described him as the Alfalfa King; he makes a great many experiments with alfalfa seed; has a laboratory, I think at Billings. Dr. Suddith had a booth at the show, and in that booth he had these various growths of alfalfa; then he had cut alfalfa, cut into short lengths to ship to the east; he had alfalfa meal, he had alfalfa flour, he had alfalfa bread, he had alfalfa cookies, he had alfalfa soda syrup, he had alfalfa flavoring for ice; and in the old man's enthusiasm he said, "Why we can fill the dairy-man's house with alfalfa." I began to think of it after talking with him and his showing all that he had done, as to the question of forming an alfalfa grower's association in this state, and I think the Secretary, Mr. Healey has a communication to present along that line. I will now ask him to do so.

MR. HEALEY: Mr. Chairman, as has already been said in your hearing this morning, we have a New England Alfalfa Grower's Association, and there are other states which have organized to give an incentive to that work. It seems to us that we here in Connecticut should at least be up with our New England friends in the other states.

To bring it before you in a more formal way, I move you, Mr. Chairman, that the Alfalfa Growers here in Connecticut organize a state association--and by the way, we already have a list of 150 farmers who are interested in the growing of alfalfa here in Connecticut; so it seems to me that we should have a state organization, and therefore I move you, Mr. Chairman, that we organize a state association of Alfalfa Growers.

(Motion put by the Chairman and carried unanimously.)

THE CHAIR: What is your pleasure?

MR. HEALEY: Can't we do it now?

Motion made and seconded to adjourn the regular meeting and to continue as a meeting of those going into the organization. Motion put by the chair and carried.

THE CHAIRMAN: We will call a meeting of those who propose to organize this association of Alfalfa Growers in Connecticut. If you will give your attention I will ask Mr. Healey to read the Constitution and by-laws.

The Constitution and by-laws are as follows:

#### NAME.

The name of this organization shall be "THE CONNECTICUT ALFALFA GROWER'S ASSOCIATION."

#### OBJECTS.

The objects of this Association shall be, to learn more concerning the points which are essential to success in the growing and feeding of alfalfa; and to disseminate among the farmers of Connecticut, the information thus secured, for we believe it will be one of the greatest factors in lessening the cost of the production of milk, and in the general improvement of Connecticut Agriculture.

#### MEMBERSHIP.

Membership in this Association shall include those persons who are present at this initial meeting in Hartford and who shall attach their signatures to this Constitution. Other members shall be elected from time to time by a majority vote of the Executive Committee.

#### OFFICERS.

Article I. The officers of this Association shall consist of a President, elected at large and a Vice President from each of the eight counties; also a Secretary, a Treasurer, and an Executive Committee of three, who shall all be elected at large.

Article II. The officers shall be elected in such manner as the Association shall from time to time decide.

Article III. The President shall preside at all meetings, and shall perform all other duties customary to the office. He shall appoint an auditor, or auditors, from time to time.



**Article IV. Vice-President:** In the absence of the President, the first Vice-President, or the ranking Vice-President shall preside at meetings.

**Article V. Secretary:** The Secretary shall keep an accurate record of all meetings and doings of the Association. He shall receive all moneys payable to the Association; shall keep a record of the same, and transfer such moneys to the Treasurer as fast as received. He shall also notify all officers of their election, and shall send a notice of each meeting to the members in due season.

**Article VI. Treasurer:** The Treasurer shall receive all moneys paid to the Secretary; shall keep an accurate account of all receipts and expenditures in a suitable book, and shall account for the same whenever requested by the President, or Executive Committee, and shall pay all bills on the written order of the Executive Committee.

**Article VII. Executive Committee:** The Executive Committee shall act on all matters which shall be referred to it by the Association from time to time, and shall report at the next meeting on any and all other matters referred to it by the Association for recommendation. The Executive Committee shall have power to fill all vacancies.

**Article VIII.** The Auditor shall audit the accounts of the Secretary and Treasurer whenever ordered to do so, and shall render a correct statement of the same to the Association and to the President.

**Article IX.** Meetings shall be held at such times and places as the President and Secretary shall determine. Seven members shall constitute a quorum for the transaction of business.

#### BY-LAWS.

The officers of the Association may make, at any time, such by-laws for the government of its members, as may be deemed expedient.

#### DUES.

The dues of this Association shall be one Dollar (\$1.00) per year.

Motion made and seconded that the Constitution and by-laws as read be adopted. Motion put by the Chair and carried.

THE CHAIRMAN: The next motion would be to appoint a committee to bring in a list of officers of your association.

MR. HEALEY: I move that the Chair appoint a committee of eight to select a list of officers, one from each county.

Motion seconded and put by the Chair. Motion carried.

THE CHAIRMAN: As there seems to be nothing more on our program the meeting will adjourn until 1.30 this afternoon, when we hope to see you and your neighbors.

#### AFTERNOON SESSION.

2 P. M.

#### Music.

THE CHAIRMAN: Please come to order. It was my privilege and pleasure last night to sit next to one whom I consider the greatest beloved man in this country. While he was not popular enough to be re-elected President of the United States, I think if a vote was taken to-day for the most popular man in this country, William H. Taft's name would win. I think we have all watched his retirement from the Presidency with a great deal of interest, and I know a few days ago I had occasion to call upon him at his office. I was anxious to secure him for an event that I was interested in, and when I was shown a list of engagements that that great man had during the winter, I threw up my hands and told him that I would not add to his burdens. He is lecturing practically all over the country, and on live subjects of interest to our people. He is doing his part in his modest and effective way to meet the conditions of interest with us to-day.

Last night, at an affair that I attended, the burden of his speech was, the condition that we find ourselves in as far as our transportation companies go, in New England; and as he expressed it, "Unless the people get back and co-operate with this great company, with this amount that they have brought into the organization at the present time, New England is bound to suffer in the future." Now that

is true to my mind—and I travel over the country a great deal and I know that the men in the West and the South feel that New England has profited at their expense too greatly in the past; and while they may be fond of us, when it comes to business, New England has got to take care of itself in the future; and it needs on our part, not only intelligence, but very hearty co-operation between the industrial portions of our community and the agricultural interests of the community. And I want to say to this gathering here of farmers, that the business interests of New England are appreciating to-day as they never did before, the necessity of their being helpful and co-operating with the farmer.

About a year ago a call was issued by the Springfield Board of Trade to the different Chambers of Commerce and Boards of Trade through Connecticut, Western and Central Massachusetts, Vermont and New Hampshire, to meet in Springfield with a view of forming a Western New England Chamber of Commerce, and I am pleased to say that I happened to be a delegate from New Haven, and I brought as forcibly as I could before that gathering of representative men from those various localities, the importance of the business men taking an interest in the affairs of the farmer; and it has resulted in that body which is doing very effective work, outlining a program for their winter's work, taking up the question of transportation and the question of agriculture. And I am pleased to say that both of the committees, which are made up of very representative men—some of our most representative men—have started in a way that I believe much good will come of it.

Now the burden of Ex-president Taft's address last night was, that we should consider it a duty to take measures to uphold the hands of President Hadley and the newly elected President of the New Haven Road and the other officials that have been brought in there, in the most effective way; and I was quite pleased a moment ago to have presented to me a set of resolutions, which I believe that every man of this audience will think proper to introduce; and if Mr. Stanley is ready, I would ask him to read them at this time.

MR. STANLEY: We have time before the regular exercises this afternoon, and I should like to see this resolution considered in detail before a vote is taken upon it.

Whereas the agriculture of Connecticut and of all New England, being dependant upon an efficient transportation service for a profitable life; and

Whereas, the union of several of our great railroads into one system and the close working arrangements of electric lines passing our farm homes, each in the way of proper service, we learn with regret of the proposed action which would separate them in their connections and in their service; therefore,

Be it Resolved, that we, the farmers of Connecticut, protest against the separation of the Boston & Maine Railroad from the New York, New Haven & Hartford Railroad and also the separation of the electric lines; and express to the officers and directors of the New York, New Haven & Hartford Railroad Company our confidence in the present management and a hope that our prosperity may not be hampered by the backward policies to win contemplation by public officials.

I move the adoption of this resolution.

THE CHAIRMAN: I would say that ex-president Taft was very emphatic in saying that the past must be forgotten and, in the words of Cleveland, we all know that "it is a condition and not a theory that confronts" New England to-day in regard to these transportation questions.

MR. DUFFY: I am surprised that anyone should introduce such a resolution to-day. I am more than surprised. It is an attack upon the administration. I believe that the administration will not do anything but what is reasonable and right and fair. I did not vote for this administration, but at the same time I don't care to see the farmers of Connecticut line up against it; in the second place we don't know what the new administration is going to do with the New Haven Road. It certainly can't do much worse than the last administration has done; and it is hard for the farmers, without giving a minute's thought to this, to decide the whole policy of the New Haven Road for years to come. More than this, I believe that Elliott's promises are worse than Mellen's policy which he advocated. Nine years ago the New Haven Railroad stock was selling at \$225; it dropped to 68 and a fraction during the last week. Is that the kind of policy we are going to advocate or indorse to-day? The

policy of Elliott, advocated at a meeting at the Waldorf-Astoria during the past week, seems to me a worse policy than Mellen ever dared to offer; Mr. Mellen is hardly to blame for the policy of the railroad. I think we better go slow in indorsing such a resolution as this. Mr. Elliott says, if I understand him correctly, and I am certain that I do, that all of the catastrophies of the railroad company in the past are due to Government. He strikes at the parcel post question. It is not true that the disasters of the New Haven are due to the parcel post. It is due to the manipulation of swindlers of Wall street. I protest against any such resolution as that being passed by the farmers of Connecticut.

THE CHAIRMAN: We would like to hear further on the resolution. Mr. Duffy is not evidently in sympathy with it.

MR. STADMULLER: I am not in accord with the remarks of the gentleman who addressed this meeting. I am in full accord with the resolution. There are two points in railroading, the same as there are in farming; there is the productive and the administrative end; and if the two are out of harmony, there is liable to be trouble. The productive end is that which concerns the service that is rendered to the people of this community, or the territory through which a railroad passes; that is one thing; the administrative end that delves in the realm of official affairs that more particularly interest the stockholders is not necessarily the same end; and whereas there has been a tremendous decline in the value of the securities of the New Haven, still I think that anybody who has given the question any thought at all, will have to concede, from the standpoint of administration, the greater possibilities for better service that rest in having this administration under one capable, executive head, rather than have it spread over a dozen; and that is the spirit of the resolution, if I understand it correctly; and if I do, I am heartily in accord with the resolution.

MR. DUFFY: There are certain portions of the resolution that I am in favor of, but there is so much in the resolution that we want to look it over. I believe that the whole thing better be voted down. I agree that the New Haven Company is a great institution, and it has got to succeed; it is going to succeed; New England cannot go on and live and prosper unless it succeeds. But we want to know what we indorse. I don't think there is a man in this hall but what needs to study the resolution; we haven't given it the time necessary. We want to be careful. The

farmers favor the parcel post; therefore we want to be careful how we vote.

MR. BEECHER: I would like to ask Mr. Duffy whether Mr. Elliott abused the parcel post, or whether he favored getting a larger amount paid to the New Haven for transporting it? There is a whole lot of difference whether a man abuses anything, or whether he says they are not paying him for it.

MR. DUFFY: You say the New Haven Road is not getting pay for the service it renders the parcel post?

MR. BEECHER: I think so. If I recollect right Mr. Elliott took up that matter; he did not condemn the parcel post in any way, shape or form; but he certainly did say that the Company should have more pay for transporting it. Mr. Elliott has never been so greatly interested in Express Companies, and never been so hand-in-glove with them as some of the railroad officials of the New Haven in the past—and those are the only railroad men that are knocking the parcel post. I don't think it is the policy of any railroad to do away with the parcel post, and I don't think we should condemn this resolution simply because the New Haven Company wants a proper compensation for transporting the mail, whether it is parcel post mail or letters.

THE CHAIRMAN: Will you remark further?

MR. STADMULLER: If I understand the resolution, it means that we deplore the effort on the part of the Government to disintegrate what seems to be a combination; and I believe that for a great many years past, the farmers of Connecticut, as well as of the New England States, have labored under a misapprehension in regard to the purpose of the New Haven Railroad. I think that we, as farmers, have thought that it was an octopus here in the New England States—a transportation system in the states of New England working for its own personal advancement and for the sake of the stockholders, regardless of the people who patronize it.

Now anybody who has any sense will know that that is entirely wrong; that that is a wrong policy; that the New Haven or any other railroad could not exist if it were not for the people whom they attempt to serve. The people have got to supply them with goods to carry and have got to supply them with the passengers to be carried. Without that patronage they cannot exist, let alone pay any dividends. I remember a few years ago Mr. Mellen delivered an address

to the State Grange in the Armory. I don't think I am in a position to criticize him for what he has done; I think he is a much bigger man than I am. He undertook to carry out certain policies with reference to the transportation system in the New England States, by which he would have made a mark in America. According to my idea he was right. You all know if you undertake to send anything from one part of New England to another, if you have to send it over different systems, how much more you have got to pay than if it was carried on one system only. We are doing our best to get freight rates reduced; but we get our best rates in handling car load lots, and when it comes to the point of concentrating this idea of combination under one head of the different transporting systems because we haven't confidence in the people that are managing these systems, I think it is about time that we withdrew from that position and show that we have got confidence in those people who are trying to build up the best and most efficient transportation system in the United States. I think that this resolution ought to be passed, or else laid on the table to be taken up at a future time.

MR. HOBART YALE: The farmers, manufacturers, business men and railroads are mutually tied together, and I am heartily in favor of anything that would draw them closer together and am opposed to anything that would drive them farther apart. I wish that something might be presented and agreed upon in showing to the head of the road and this system that they have our sympathy and confidence if they will do their part. I wish that the present resolution might be put aside and that the presiding officer, (Mr. Lee,) with Bro. Duffy and Mr. Stadtmuller might prepare a resolution that can be presented to-morrow for action.

MR. R. E. DODGE; I think that it would be unfortunate, and liable to misinterpretation, to turn this down as suggested; therefore I would move that the mover of the resolution, Mr. Lee, Mr. Duffy and Mr. Stadtmuller be appointed a committee to consider this matter and report at our meeting to-morrow forenoon.

MR. YALE: I second the motion.

Motion put by the chair, voted upon and declared carried.

THE CHAIRMAN; I understand that the committee shall be made up of Mr. Stanley, Mr. Stadtmuller, Mr. Duffy and the Chairman.

I think my system is very full of this co-operative spirit.

I am working constantly with commercial bodies, and am doing everything in my power to get them interested in it as far as I can. I find that the commercial bodies are very much in sympathy with the last speakers—with this resolution, and I feel that there will something good come out of this for all.

THE CHAIRMAN: I recall, at a meeting of the National Dairy Show, something over a year ago, that I saw a very fine herd of Jersey cattle; they were shown in the ring in a way that was very interesting to a man who was interested in Jersey breeding; but the best part of it, to me, was that they seemed to be judged by a man that knew a Jersey cow and knew how to judge them, and he put the ribbons where they belonged. We have the gentleman that judged those cattle here to-day, and we shall be very glad at this time to hear from him.

MR. VAN PELT: Ladies and Gentlemen: I am very glad to be here, because I have been asked to speak to you upon the subject of the Dairy Cow. We of the West feel that you people here in the East certainly appreciate the real value of the cow more than we do in our community; and it is certainly well that you do, and we know full well that in our country, where we have had sufficient fertility so that our farmers thought it was absolutely impossible and out of the question to ever use the fertility up to the extent where they could not farm profitably, that to-day we are becoming impressed, in the Mississippi Valley, that that time is right at hand. I think we are going to pass through the same history that has been passed through in New York State and in the New England States; and so now there is a great wave of education passing over the entire middle west and the far west; and we are to learn, as you have learned, that if we are to maintain our fertility and have it greater, we must milk not only more cows but better cows, and care for them more properly.

Now I am satisfied that farmers everywhere, haven't paid enough attention to the selection, care, breeding and feeding of their dairy cattle. I doubt very much if the rank and file of us ever stop to learn or give the study and consideration to our dairy herds that they warrant. I doubt if many of us have considered the real office of the dairy cow; I doubt if we have stopped to consider and learn that she is really the most profitable animal that we can put upon



our farm, and so I speak to you this afternoon, relative to the selection of dairy cows. I might say to you in all frankness that it pertains as much or perhaps more to the one who is already breeding dairy cattle and has been for a great number of years, than it does to the young man who is about to enter the ranks of the breeders of dairy cattle. In breeding dairy cows there are certain essentials that must be present; she must be bred along particular lines; there must be proof present of her pedigree; we must know ancestors on the maternal line have been proper; we know that "like begets like," that likeness of ancestors is just as true as it ever was; and we know furthermore that all the high class live stock that we have at the present date has been built up on that great law. I will try to confine myself, this afternoon, more largely to those who are milking cows,—from a dairy standpoint,—than to those who are breeding dairy cattle,—from the standpoint of breeders; there are certain essential points that must be observed in selecting dairy cattle for the building up of our herds; and those points can be enumerated, on the fingers and thumbs of one hand I believe; there are just five of those real, essential points. There are other points hinging on them—and I say frankly, that if we are milking cows that are seriously lacking or not highly developed in any and all the five essential points—then we are not milking whole cows, we are only milking parts of cows, and we can't expect them to be profitable.

I will mention those five points that a dairy cow should have, and then discuss them. They are as follows: First, constitution; second, capacity; third, nervous temperament; fourth, blood circulation; and fifth, ability. I have mentioned them in that order, not because one of them is more important than the other, because I know not that any one of them is more important than the other. I do know this, that a cow can be extremely well developed in any four of these points, and if she is lacking in the fifth point, then those four points avail very little, because she will not be productive and she will not be profitable; so that in selecting our cows, we should not do as many people do, select them on one point, but they should be well developed on all five of these essential points. I mention constitution, because we know that the cow is the hardest worked animal that we have upon our farms. She produces more food for mankind, if she be a good dairy cow, than any other animal; she converts a tremendously large amount of food into a highly finished and digestible product for feeding mankind throughout a given period; and not only that, but our cows are very often housed at this time of the year in barns that

are cold and dark and damp, and poorly ventilated, subjecting them to disease germs, pneumonia and all the ills that beset cows. Under those conditions it is almost a wonder that the cow can go through the winter, and she must have a tremendous constitution if she lives, let alone gets to be a good dairy cow. From that standpoint we might first give consideration to the nostrils. I wonder how many of us who milk cows have ever paid very much attention to the kind of nostrils our cows have. We pay attention to the formation of her ribs, because we know that the heart is located in that portion of the body, but how many of us ever stop to think that all the air which purifies the blood passes through the nostrils. Some cows have large nostrils and some have small; and in selecting our cows I believe that it is a vital point to select those with large, well distended nostrils, so that the cow can secure a sufficient amount of oxygen for purifying the blood. This has to pass through the nostrils to the lungs and heart. Her chest capacity should be deep from the top of the shoulder to the floor of the chest, well sprung in the front rib and deep in heart cavity, because in that section of the cow rests the heart and the lungs, and they are really the vital organs of constitution.

The second point that I mentioned was capacity. We should consider our cows as being machines, for, in the last analysis, whatever else a cow may be, she is a machine, placed on our farms, for the purpose of converting raw material, the grain and grass that you raise in your fields, into the finished commodities, milk and butter fat. Therefore, a cow, like any other machine, is valued largely upon the amount of raw material she can turn into a finished product in a given time; and, other things being equal, the cow that can manufacture most economically the largest possible amount of raw material into milk and butter fat in a given time, is the most valuable animal for us to have upon our farms.

In order that a cow be capacious, she must have sufficient storage room for a large amount of feed. A cow does not originate or generate anything; she simply converts the feed you give her into milk and butter fat. If you withhold the feed from your cow, or give her only enough for the purpose of maintaining her own body, she will merely maintain her own body. After she has accomplished that, any other feed that you are liberal enough to give her, will be converted into milk and butter fat. And that is the point that we should bear in mind, that a cow absolutely cannot make milk and butter fat out of nothing; and if her barrel is just sufficiently large enough for her to store a sufficient

amount of feed for maintaining her own body, then she will give you no milk or butter fat. That is an extreme case. We hardly ever find a cow like that. Furthermore, if the barrel is just developed so that she can store only a small amount of feed more than is necessary for her own body, then she will give a small amount of milk and butter fat. As we increase in size of barrel and storage room for feed, the cow, if she be bred along dairy lines, will thereby give a larger amount of milk and butter fat in a given time. So that we desire that a cow have a large barrel; and in order to secure this dimension, we must have a body that is long from the shoulder to the hip bones, and she must have well sprung hips and deep ribs, so that we gain the capacity, length, depth and breadth. Now in addition to size of storage room, we demand that the cow shall have a strong, powerful digestive apparatus. Many of you have seen a judge at a show as he walked away from an animal reach behind him and take hold of the hide, and you have wondered just why he was pinching the cow's hide. Sometimes I have wondered myself if the judge knew just why he was doing it; but I believe there is an indication there. I think that the hide and the hair is an indication of the interior of the animal. As a matter of fact the hide and hair, or the outward appearance of the animal is an indication as to the inner appearance of that animal. If the hide is soft, pliable and elastic, covered with hair, soft and silky, it indicates that the digestive apparatus is strong and powerful; if the hair is harsh and the hide resistant to the touch, it is an indication that the digestive apparatus is either temporarily or permanently upset. The first indication that a cow is letting up on her feed is that the eye begins to get dull, the second indication is the hair begins to stand the wrong way and the hide begins to get hard and harsh, and the third indication is that she begins to leave a portion of her feed in the box. So we find that one of the best indications of a weakness in the digestive apparatus, either temporary or permanent, is very harsh, resistant hide and hair.

The third point that I would call your attention to is Nervous Temperament. By that I do not mean a temperament such that a cow will give a large pail of milk and then kick it over. A dairy cow, to be profitable, must be a worker; she must not wait in the stable to have her feed brought to her, but she must go back and forth, across hill and valley, gathering feed and grain, out of which to manufacture milk and butter fat; that is the kind of cow we want.

We have a man in our town who is quite an adept in selecting dairy cows. His business is that of manufacturing

machinery. He considers that he knows very little about cows. One time I asked him how he selected cows and managed to get such producers. He said; "When I go to select a cow, I don't go down to the stable to see them, I watch them work in the pasture. I stay there as long as I have time and watch them work. I find that those cows that work well are invariably good producers.

A cow that is a worker, as a rule, has large, bright, prominent eyes, broad between the eyes, well dished in the face, with a great, broad forehead, indicating brain power. The brain governs the nervous system, the nervous system expedites digestion. If we find she is a worker, there is an entire absence of fat, the back bone open-jointed, the vertebrae are prominent. She is not putting all that we feed her onto her own body; she is furnishing it to us in the shape of milk and butter fat. The animal with dull, sluggish eyes set back in the head, is, as a rule, a loafer, standing under the shade of a tree fighting flies in the summer time, while her sisters are grazing back and forth across the pastures, gathering food for the economical and profitable production of milk and butter fat.

The fourth point is a very vital point—Circulation. To be of the productive type, the cow must not only have an abundant flow of blood, but the course of circulation must be through the proper channels and in the right direction.

When the real dairy cow has digested her food, the blood is pumped out from the heart past the digestive apparatus, picking up the digested nutrients and carrying them, around and through the udder, where milk and butter fat are made. The first indication of the amount of blood passing into the udder is at the escutcheon, a portion just above the rear of the udder where the hair grows upward, on each side of which the hair grows downward. It is believed that the hair covering the escutcheon is nourished by the blood in the vessels which are passing to the udder. An indication which determines more accurately the amount of blood passing through the udder, is found in the mammary veins. All cows have two of these veins, one on each side of the abdomen. Some cows have straight, short veins, ending in a small milk well; other cows have veins that are large and tortuous, extending far forward to a large milk well, an opening in the abdomen large enough to insert the thumb, and passing on to a second milk well, and sometimes on to a third or fourth. These are termed double extension veins. Some cows have three veins, one extending forward from the udder along the center of the abdomen between the two outside veins. Such a vein is termed a center ex-

tension. The size, length and tortuousness of these veins, together with the number and size of milk wells, when found passing forward from the udder of the cow, indicates the amount of blood that is circulated past the digestive apparatus, picking up food nutrients, carrying them to the udder, and, being rid of its load, is on the way back to the heart and lungs for purification, and to be pumped back again. I have never seen a good cow with small, short, straight mammary veins, and I have never seen a cow with large, tortuous veins and large, numerous milk wells, that was a poor cow. A consideration of the blood flow will determine, largely, the character of a cow, from the standpoint of milk and butter fat production. Feed deposited on the back of a cow cannot be made into milk, and, on the other hand, feed that is deposited by the blood in the udder of the cow, cannot be manufactured into beef; and, for this reason, a dairy bred animal is considered, from the standpoint of beef production, as a scrub; and likewise, a beef bred animal, from the standpoint of milk and butter fat production, is a scrub. This is due to the fact that no animal can do two things with the same pound of food at the same time. In selecting animals whose ancestors have for hundreds of generations been bred for the purpose of putting their food on top of their backs, and striving to induce those animals to turn the circulation of their blood around to the under-line of the body instead of the top line, is working against nature, and is quite as impossible as to produce high class rib roasts and porter house steaks on the backs of dairy cows.

The fifth essential is Ability—the ability that the cow has to manufacture the digested food nutrients that have been brought to the udder by the blood, into milk and butterfat. Experience has demonstrated that certain types of udders have proven most efficient for this purpose.

The udder should be long, broad and of good texture. To gain length, the udder must be attached high behind, and extend far forward. You will notice on any good dairy cow, that if a plumb bob were dropped from her hip downward, the line would fall just in front of her udder. If it were dropped from the pin bone, it would fall just behind the udder. Thus it is that good length from hip bones to pin bones is desired, for it is an indication of the length of udder development. Furthermore, it is desired that the tail head carry straight out. Cows that drop at the rump, because of the law of correlation, have tilted udders, or udders with a portion of the fore-quarters sacrificed. On the other hand, cows that carry out straight at the tail head carry

straight forward in udder development, adding to the size and capacity of front udder development.

As you pass behind any well bred cow, you will notice that she is thin in the thighs; in fact, you can measure the thigh with your thumb and finger, and she cuts up high behind. This conformation is necessary in order to have a wide udder, and is the formation described by the term "thighs out-curbing and in-curving." An udder that is long and broad, with each quarter well rounded out, and a teat on each corner, meets with the specifications relative to form.

However, many of you, perhaps, have owned cows with such udders, that were disappointments. The reason, likely, was because the udder had no texture or quality. Good cows not only have large, well-developed, shapely udders, but udders that show quality and freedom from coarseness and beefiness, as indicated by the texture, pliability and elasticity of the covering.

These are the five points; and if you are milking a cow with any one of them absent or poorly developed, you are not milking a cow, but only part of a cow. For instance, suppose a cow is capable of eating a large amount of feed, but lacks constitution, she will not remain healthy, and perhaps in a short time she will die. Granting her constitution without the proper nervous temperament or disposition to work, she will consume just enough food to take care of herself; and if she lacks capacity, she cannot eat enough feed to make a profit regardless of her disposition to do so. Given constitution, capacity, and disposition to work, if her blood flows in the wrong direction, she will make beef instead of milk, and then it will be necessary to kill her to get the cost of the feed back. And further than this, if the blood carries nutrients into an udder which has not the ability of manufacturing the nutrients into butter-fat, still there is a loss. All of these points fit together in dove-tail fashion, and must be given due consideration in selecting cows for profit.

There are other points, such as width across the hips, breed types and characteristics, but time does not permit reference to more than those points which are necessary for profitable milk and butter-fat production.

But after all, when we have taken into consideration these points, we do not know much about the cow. There is no one who can look at a cow and tell within 1,000, 2,000 or 3,000 pounds how much milk she gave last year. If you do not know her breed, you could not tell within one or two per cent. of how much her milk tested, were you to see a sample of it. The only way to determine the true measure

of a cow, is to use a scale each time the cow is milked, and test her milk one or two days out of each month. It does not take long to do this, and it is the only method of determining accurately the real merits of the cow from the dairyman's standpoint; and it is well worth while. Study the history of every great cow and you will find that at some time in her life she, or some of her offspring, were sacrificed because her real value had not at that time been determined.

Remember that in the United States farmers are milking 14 million cows, no one of which makes anybody a profit, and that on the average farm in this country, somebody is wasting 27.2 days every year.

By the use of sound judgment in determining the development of the essential points of butter production, and the use of the scales and test, this great waste of feed and labor can be eliminated.

So that the proposition which faces us to-day is, how to build up our dairy herds and how to secure identically the kind of cows about which I speak; and the best way is through the use of sires—and that brings me up to that phase of the subject. All over the United States we have been too careless about the sires; and I say to you to-day, that he who is careless about selecting sires with which to make his herd, will never accomplish anything; the herds will retrograde generation after generation, if he is careless about his sires. The first thing in selecting a sire, of course, is pedigree; and some of you will say that the papers with a sire amount to nothing; and that is very true, except as the pedigree is a history of that animal and of his ancestors. If you stop to consider what the pedigree is, I am sure you will look at it differently in the future than you have in the past. I have been very much impressed in the last year or two, because I have been breeding some dairy cattle myself, with the inquiries that come to me for pure bred sires, and they demand the papers; that is the first inquiry, and the second inquiry is, "How much does he cost?" Papers of that kind do not amount to anything, because he gets the pedigree along with the animal and does not study the history of the animal; so that I say to you, in selecting a sire, if you wish to secure a pure bred animal, you should study his pedigree before you purchase him, and determine whether that pedigree shows that you are getting a progenitor of productive, profitable dairy animals, or whether you are getting an absolute scrub. I believe that there are as many pedigrees of sires in the United States that will tell the thinking man that he has purchased a scrub, as there are

pedigrees that tell the story of a good sire; and so the pedigree amounts to simply that much. If the pedigree tells that the sire's mother made 900 pounds of butter in a year, that her mother made 800 pounds, her mother in turn made 700 pounds and her mother 600 pounds, there has been a gradual increase, and you needn't fear using that sire; but on the other hand, if the pedigree shows that this sire's mother was pure bred, that this sire's sire was pure bred, and his grand-mother was pure bred, and her great-great grand mother was pure bred, that amounts to a little, but not very much, because perhaps if the whole story were given in that pedigree, it would show that there was a decrease in the amount of butter made by the ancestors of the sire instead of an increase; and then there are just as poor pure-bred cattle as there are grade cattle, so that we should study the pedigrees of the sires that we place at the head of our herd and find whatever we desire in there. In the second place I would say that the sire should be prepotent, so that he will transmit to his offspring those qualifications which I have outlined—Constitution, Capacity, Nervous Temperament, Blood Circulation. The way to secure them is through transmission, and you should see that your sire has the right kind of a head, large mouth, large nostrils, broad between the eyes, well dished face, large, bright, prominent eyes, large neck, well sprung in the ribs and deep in girth, showing indications of a good constitution; he will transmit those to his daughter, and we will have those qualifications in the cow. In other words, in selecting a sire for your herd, you should see that he has, as nearly as possible, all of the characteristics which you desire in your cows. Also, in selecting heifers, you should take the same points into consideration. How many of you ever thought that you should look for a sire having mammary veins in a rudimentary stage, the same as you would look for them in a cow? Many of you perhaps never thought of it. Some sires are more highly developed in the mammary veins than others, and if you look closely you will notice these same veins that you find on cows; of course not as highly developed, because in cows they are developed by the tremendous flow of blood which carries the great amount of nutrients into the udder for milk production; and so I think that we should not overlook the importance of any of these things in selecting our sires, and I say to you frankly, that if it were necessary, and of course it would be, in selecting a sire, to use precaution in the amount of money that I expended on my herd, I would use that precaution in selecting cows. I would far rather expend less money for cows, and put the money I had left, in a



sire. To illustrate, if I were a young man in dairying, I would rather have two good cows and a good sire, than I would fifty cows and a poor sire. If I had 50 cows on my farm, and it were necessary for me to sell 48 of them in order to get a good sire, or to keep the whole 50 and have a poor sire, I would sell 48 of them and get a good sire. I heard of a man down in Nashville, Tenn., who had only bought one cow; I became interested about four years ago and wrote him, asking him to tell me his story; he wrote back, "It is true, I only bought one cow; when a young man I bought a cow named Golden Eyes, and from that time I have always raised heifer calves; I sold \$7,000 worth, and then I sold \$8,000 worth more since then; I have sold a few head for \$550, and now I have 60 head of heifers that I am preparing for another auction sale; and all from one cow and her offspring, from milk and butter fat that they got off my farm." As a matter of fact he is one of the most famous breeders of this kind of cattle, and he has good cows and he used good sires always and raised the heifer calves. I believe that answers the question as to whether or not it would pay the average farmer to raise his heifer calves. That was part of my subject, I think, perhaps I need not dilate longer on that, after having said to you that there is such a tremendous demand for dairy cows all over the United States, in fact in all parts of the world. The question is often asked whether or not I believe that the present prices of dairy cattle are permanent or only temporary. I frankly believe that they are absolutely permanent, and I do not think that any of us will ever live to see the day when we will be able to accept less money for good dairy cattle than we do at the present time, and I know of no phase of agriculture that offers such a great opportunity for the young man who is just starting in the farming business, and I know of no bigger opportunity for the man who is breeding dairy cattle to-day and has a large herd, than the one thing of selecting good sires, the proper kind of sires, and raising the heifer calves; because, if he is a master-breeder or even a good breeder, he can certainly improve upon the animals that he has now, by disposing of the older ones and breeding the others up a little bit more, following the suggestions that have been give here as to the selection of a sire, and paying attention to the history of the sire's family as given in the pedigree. I can't imagine anything that will afford more pleasure to a man on a farm than to do just that, and I am sure that there will be nothing more profitable. I thank you for your kind attention. Whenever you have bred your cattle up to where you actually think they are

as nearly perfect as they can be bred, then I would in-breed; and if there were things that ought to be abolished, because in-breeding intensifies both inferior qualifications and superior, I would use another sire, properly selected, and breed it out of that herd. You might intensify production, but you have also intensified, perhaps, coarse hair and other things which we do not want, and I don't think I would countenance in-breeding in pure bred cattle at all. I think it is well to line-breed. I might say that line-breeding differs from in-breeding, in that in-breeding is the mating together of animals very closely related; out-crossing, is the mating together of members of different families; line-breeding is the mating together of families remotely related, and I think that is preferable. It gives you the advantage of maintaining the blood that you have in your herd without running the risk of having those bad things. For instance, I have never seen a perfect animal, and I have never seen a herd of cattle that were uniformly good; so long as that is true there is always an opportunity of going outside and bringing in some new blood that will overcome some of those objections to our herd.

THE CHAIRMAN: At this time I will announce the Committee to report a list of officers for the Alfalfa Association: L. H. Healey, Windham County, W. M. Andrews, New Haven County, Charles A. Thompson, Tolland County, J. B. Palmer, New London County, J. A. Sherwood, Fairfield County, and R. E. Dodge, Litchfield County. (Middlesex Co. and Hartford Co., not named.)

It is probably known to most of you that a Commission was appointed by the governors of various states, to investigate the subject of rural credits abroad this summer. Massachusetts sent a gentleman who stands very high in New England, not only as a citizen of Worcester, but as a writer on agricultural affairs, Mr. J. Lewis Ellsworth, for many years Secretary of the State Board of Agriculture of Mass., and he will talk to you to-day on what he learned about rural credits, banking and agricultural cooperation in Europe. I take great pleasure in introducing Mr. Ellsworth.

MR. ELLSWORTH: Mr. President, Ladies and Gentlemen: Although I don't know that you need any new banking system here in Connecticut, still there are phases of rural banking as carried on in Europe, that if they were taken

up here, it appears to me might be very helpful. Co-operation as it is practiced in Europe certainly will be helpful anywhere; and I want to say this commission consisted of 78 individuals. There were seven appointed by the President of the United States, and the rest were made up from the different state governors, as your president has said. The meetings of the commission were first held in Italy, and there its first observations were made. From then on, the meetings were held, and agricultural authorities, bank presidents and other well-informed people gave lectures, conducted discussions, and freely answered questions upon the different matters which we were studying.

We shall consider, first of all, some of the basic principles of the systems of rural credit as they have been developed in Germany, in which country it has reached its greatest degree of perfection. We shall divide the subject into the two distinct and necessary forms of credit, the short-term or personal loan, and the long-term, which is usually the land mortgage loan. As there are several different systems of each now operative in Germany, we shall deal only with those which appear most important, and possibly, practical, for this country.

First let us consider the personal or short-term loan. We found two distinct systems in Germany, one serving the urban districts, the other operative in rural territory. These are the Schultze-Delitsche system, which usually operates in cities and towns, and is not strictly a local institution, and the Raiffeisen system, which confines its activities to local rural districts.

Briefly, the principles upon which the Raiffeisen banks are founded, are as follows: Unlimited liability of all members, as security. Permanent reserve fund, as additional security. Limitation of area, insuring personal acquaintance of all members, and none may belong to more than one society at one time. Loans are made only for productive or provident purposes, and only to members; investigation made first as to the purpose and then as to the actual use of the loan; maximum time of loan five years. Facilities for repayment by instalments; borrower also at liberty to cancel full debt by payment at any time. Absence of profit seeking, dividends being limited to rate of interest paid by borrower, if any are declared. Officeholders, with single exception of secretary or accountant, not remunerated for services. The aim is to improve not only the material but the moral condition of their members. The capital is originally raised upon shares, which are sold to members, the average cost of these

shares being in the vicinity of \$25. Regardless of the number of shares held, each member has but one vote.

No loans are made to others than members, and as a rule, are not made for more than four years—never for more than five. They are payable, not in a lump sum on a certain, specified date, which often comes so hard on the borrower, but may be paid in instalments.

In every case, the length of the term for the repayment of loans, is fixed in advance, and this term and the amount of instalments are proportioned to the object of the loan and the ability of the borrower to repay. These banks receive deposits both from members and from outsiders, but confine all loans to members.

The interest on loans ranges from  $4\frac{1}{4}$  to 5%. Satisfactorily indorsed notes or collaterals are accepted as security. I think the money rates in Europe are higher now than they are in this country. It was so testified before our hearing.

All officers and trustees are chosen by the members and serve for four years. The accountant or cashier received about one-tenth of one per cent on all transactions. The societies reserve the right of recalling loans upon from one to three months notice; but this is very seldom done.

These, then, are the local Raiffeisen societies. The founder, realizing from the beginning, the need of combination among these local societies, in order to provide a center for equalization of funds by a non-profit seeking organization, finally solved this problem by the establishment of central banks in each province. The local banks adjusted the finances of their members, and the central banks adjusted the finances of the local societies in the same manner. The German agricultural central loan bank in turn balances the supply and demand among the provincial central banks, obtains credit and makes necessary investments for them. This, for convenience, has 12 branches in different parts of the country. While the local societies are in no way under government supervision, the central bank is subject to inspection by a representative of the government, as the state has made an appropriation in its aid upon which 3% interest is paid to the state.

Neither the inspector nor the government can close the bank, but in case of mismanagement the appropriation can be withdrawn. The original intention was, to have other co-operative undertakings carried on by the local Raiffeisen societies; but experience has proved that this is impracticable and has shown the advisability of independent organizations for conducting other operations. These we will consider later.

Let us now consider the land mortgage, or long-term, credit system as operated in Germany; and we shall discuss but one system, known as the *landschaften*, and found largely in northern Germany, for it seems to me that it is this system, or some modification of it, which will eventually be found applicable to conditions here, in this country. It is a system which will appeal to anyone who has ever had experience with a mortgage on the farm, and which eliminates entirely, the disagreeable individual feature which characterizes the farm mortgage in this country.

To begin with, at times we have great difficulty in securing a purchaser for a farm mortgage, unless the interest rate is high. This is due to several reasons; they are not a liquid investment; the purchaser must ascertain the soundness of the title; he must determine the sufficiency of the security offered; he must see that the interest and principal are collected; and he must see that the property involved does not deteriorate to such an extent that security is endangered; and he must also see that the taxes are paid.

Then, too, the requirement of repayment in a lump sum and the limited time for which such money can be secured, are very serious hindrances. These two factors in a great many instances force the mortgager to either secure a renewal at a still higher rate of interest, or else contract a new mortgage. It is just these features which the mortgage-credit association have been organized to eliminate, and this they have done; the so-called *landschaften* having proved even more efficient than others which were investigated. Some of the general principles of these organizations will be of interest, and I shall try to give you as clear a conception as possible of the methods involved.

To begin with, the farmer, whom we will call Jones, who is seeking a mortgage, has no direct, personal relations with the person who actually furnishes the money. He goes to the *landschaft* and makes known his wants. The first step taken is, to secure an impartial valuation of his property—his farm lands. This is made by three different parties; first, by two or three of the members of the *landschaft*, who live in his vicinity; second, by an independent valuer, such as the professor of agriculture in the nearest university; and, third, by the officials of the *landschaft*. The lowest of the three is then taken as a basis for the loan. In this way there is no possibility of an overvaluation. Then, as a further precaution, Jones is allowed to borrow only two-thirds of this lowest valuation. He then does not receive this amount in actual cash, but he is given bonds to the specified amount. For these he is given his mortgage, and this

is registered in the books of the government law officers. Jones then disposes of the bonds. He may sell them through his own banker, or the banking department connected with the landschaft will sell them for him. They are sold in the open market.

Now you see, the one who buys these bonds—let us call him Brown—is really the mortgagee. He has as security, not merely this individual mortgage, but the pool of all mortgages in the hands of the landschaft, and, on addition, the reserve fund, which the organization is constantly building up.

The law states that the money of widows and orphans may be invested only in government bonds or in landschaften bonds. The security and stability of these bonds is thus recognized, and is due, largely, to the fact that the government has supervision over these organizations. Each organization represents one political district.

As Brown and Jones, then, do not come into any direct, personal contact, let us see what relation each bears to the landschaft itself. First, let us take Brown, the man who has bought the bonds. He secures the interest on his investment, not from Jones who has contracted the mortgage, but from the landschaft. This is payable on the 1st of April and is usually  $3\frac{1}{2}\%$ .

If, at any time, Brown desires his principal, he cannot foreclose on Jones, neither can he collect from the landschaft. He simply sells his bonds in the open market.

Now as to Jones' position: The day before the landschaft has to pay the interest on its bonds, it collects the interest from its members; and only those who are carrying mortgages are members of the organization. Interest is collected at the rate of 4%. The one-half per cent. difference between what Jones pays and Brown receives, is used to meet running expenses first of all, and then to build up a surplus as reserve fund.

Each year Jones pays a fixed sum, which not only covers the interest, but goes toward the reduction of the principal.

The mortgage cannot be foreclosed, either by Brown or by the landschaft, as this is a part of the system; but a larger proportion of the payments gradually goes toward the reduction of the principal, and a smaller amount towards the interest, until at the end, usually of either 45 or 54 years, the mortgage is amortized and canceled.

The payments, over and above the running expenses and what goes into the reserve fund, are used by the association to buy up the bonds, so that when the mortgage

becomes amortized, the entire bond issue upon it had been bought up.

Now suppose that Jones for some reason or other fails to pay the interest. His land may then be sold in the open market, and, owing to the low valuation which has been placed upon it, a larger amount than the bond issue would invariably be realized. The landschaften is reimbursed for the sum total of the bonds issued, and the balance goes back to Jones. In this way the organization and the bondholders are protected; and then too, there is also the surplus to fall back upon.

In nearly all European countries, co-operative buying and selling associations have been carried on successfully and to a considerable extent for some years, yet in Austria-Hungary, Germany, Holland, Denmark and France, the farming people appeared to be deriving the most benefit. While in all countries, the general principles of organization and purpose were the same, there appeared to be a difference in methods—some countries emphasizing one feature and some another.

The supply societies in Germany deal mainly in fertilizers and food-stuffs. One, two or three parishes are usually included in the jurisdiction of a single society, the area being governed by its ability to furnish enough members so as to secure the advantages of purchasing in bulk. Central organizations, representing all local societies in a province or state, are organized to increase the buying power still greater, and thus reduce cost still further.

There are three principal types of co-operative dairies; those in which the cream is separated and butter made, but the milk and buttermilk is returned to the producers; those which sell new milk for making butter and cheese and use the by-products as food for pigs; and those known as cream depots, which only separate the cream, which is then sent to a central dairy, or to the towns.

A milk supply from at least 300 to 400 cows must be guaranteed before definite steps toward organizing a society will be made. Members must deliver to the central station all milk not needed for use on the farm or in the home. Payment is usually based on the fat content. Central Organizations have been formed to some extent.

The co-operative grain selling societies aim to secure for the producer improved facilities for cleaning, drying and grading seeds, regulating prices by reservation of supply, enabling the farmers to secure credit, with corn in the warehouse as security, lessening or eliminating payments to middlemen and reducing transportation charges.

The cattle-selling associations aim at the elimination of superfluous charges in getting cattle to the market, and, although attempts have been made to establish co-operative slaughter houses, similar to those in Denmark, they have as yet been unsuccessful.

The majority of the societies sell on commission, and all animals are insured against damage in transit and against partial or total loss at the hands of the inspectors. Many societies maintain their own system of insurance.

A realization of the advantages to be secured if individual farmers would combine to bulk, grade and send their eggs to market in a dependable, fresh condition, led to the formation of societies, which, in addition to the handling of the eggs, seek to promote the poultry industry by advising as to breeding and feeding, turning their attention to better methods of housing and selling desirable birds at very low prices.

The co-operative movement in Hungary began by the founding of the Budapest central, co-operative creamery. This was founded upon the incentive of the Minister of Agriculture in 1883. The 1912 report shows a membership of 140 farmers holding 648 shares. When organized, the value of shares was \$160, each.

The association owns a large plant, which we visited. We were received most cordially, and were shown every part of the plant. The milk comes in from the surrounding country in large cans, loaded into big two horse teams. It is then weighed and turned into the large pasteurizing tank. Then follows the bottling for market. Sweet milk, baby milk and sour milk are sold. Some of the cream is separated; part of the cream being sold and butter made from the remainder. All milk is delivered by retail shops, most of which deal in milk and milk products, selling from push carts as well as directly from the store.

700 men and women are employed to handle the output of this association, which amounted in the month of April 1913, to 1,900,600 liters of milk. The farmers are paid according to the fat content of the milk, which ranged from 3.24% to 3.8%, or, an average of about 3.6%.

In co-operative distribution Hungary is far advanced. There are two distinct types of societies known as the "organized;" that is, being under the jurisdiction of some central organization, and the unorganized. The central society controls the former, supplies them with goods and working capital and attends to the wholesale purchase of supplies.

They deal mainly in household necessities, provisions, seed, commercial fertilizers, machines, tools, etc. The unorganized societies are independent, individual institutions,



and may be divided into two classes; those dealing in household requisites and provisions, and those dealing in all kinds of agricultural supplies.

Going on to Austria, we found co-operative milk plants similar to those in Budapest and other parts of Hungary. Vienna, the capital of Austria, claims the largest co-operative dairy plant in existence. The milk is distributed to the sale depots in 102 wagons. These wagons also transport the milk to the central plant as it arrives at the railway stations from the farms. Their employes number 660, and 212 horses are kept.

Including the persons who deliver the milk, the number of employes would be about 1200. The branch depots have about 210 push carts for delivering the milk. This immense proposition began its career in 1881, with 33 members, while in 1911-12 it had 631. The milk at the railroad station is valued at  $4\frac{1}{4}$  cents per quart.

Upon arrival at the plant it is strained and pasteurized. A specialty is made of baby milk, prepared by special methods. Fresh milk is sold in sealed glass bottles, from 80,000 to 90,000 of which are filled every night. This is, undoubtedly, the largest bottling plant in the world.

Of all the countries visited, Denmark showed the most marked development of the different types of business co-operation. The Danes were leaders in the organization of co-operative business.

Formerly, a corn-producing country, with Germany as its principal market, she suddenly, in 1879, found that market cut off by an edict issued by the German Kaiser, barring admission to this product. The Danes then turned their attention to cattle raising, and later to pig raising and poultry growing. Then came the necessity of disposing of their products, first the butter, then the bacon, and later, the eggs.

Co-operation seemed the open door, and they were not long in taking advantage of it. The piecemeal adoption of co-operation, first for one purpose and then for another, resulted in a division of the different projects, each into a separate society, such as dairy societies, supply-purchasing societies, bacon-curing societies etc, so that, of necessity, one may belong to nine or ten different societies, each performing a separate function.

The co-operative dairy societies compel their members to feed only certain things, to cool their milk to a specified temperature immediately and hold it at that temperature; and such regulations as will insure a uniform, high-grade product. Failure to comply with the rules, means that immediate rejection of the offending product. Each member,

however, is glad, through the society, to compel himself to do these things, which will not only mean a larger output, but a sure market and better prices for it.

These societies have meant great progress for the small dairy farmer. The dairy owns 23 wagons for transporting milk from the farmers and to its shops and customers. It also owns 12 horses for use in town delivery, but hired horses for bringing in the milk. The dairy has 20 stores in Odense selling only its products.

Egg production forms a very important part of the Danish farmer's source of income. To increase the returns in this branch of agriculture, co-operative egg export societies have been formed. The most important of these is called the "Danak andels ægekspport." This was organized in 1895, and one-fifth of all the eggs exported from Denmark now pass through its hands. It embraces 500 affiliated branches, with a total membership of 40,000 poultry keepers. Each branch has its local depot, and appoints a collector, who is paid a small commission on eggs collected. The eggs are purchased by weight, which induces the farmer to keep improved breeds and strains. There are stringent rules to insure that all eggs collected have been laid since the previous collection, and a penalty of a fine or expulsion is inflicted for violations. All eggs are branded with the trademark of the society and also the reference number of the branch society and the registered number of the member who supplied them. In this way it is possible to trace any defective egg from the breakfast table right back to the producer. Needless to say, very few poor eggs are found. The local depots forward the eggs to central packing stations situated in towns having convenient communication with English ports. The eggs are sorted into five different grades and packed in wood wool or excelsior, 1440 eggs in each box. There is the least possible delay between producer and consumer. This method insures the consumer a reliable article at a reasonable price; it guarantees the producer a maximum price as well, by the elimination of middlemen. The price paid the farmer is set by the society.

At the end of each year the net profits are divided among the members, in proportion to the value of the eggs received from each. These are only some of the many forms of business co-operation in Denmark.

I have one suggestion that I am going to make, which I made to the Board of Agriculture at Springfield, and that is this; that the milk producers in the several different sections of the New England states, because I am sure that some of you sell milk to go to Boston, should build co-

operative creameries convenient to the largest supply, expending the least amount of money to build and equip such a plant, so that the farmers can stand ready to demand a living price for their milk, and if the buyers do not agree to the promised price, the milk could be converted into butter, and the skim milk returned to the farmers, under the same method as pursued in Denmark. The interest on the money expended under this scheme, would be very small, and should be put in the same class of expenditures as insurance. George McKerror, of Madison, Wisconsin, informed me that an organization of farmers in Woodstock, Illinois, had carried out this plan successfully, and increased the price of milk 10 cents per 100 pounds.

I feel that co-operation is the keynote of future progress and universal success in agriculture in this country. We will do well to get out from under the frame work of individualism upon which we have so long depended for shelter from competitive products, and upon the solid foundation of agriculture erect a framework of co-operation which will, beyond a question, be sufficient to sustain any burden of competition which it may be called upon to support. So let us strive for co-operation organization here in Connecticut, to the end that our farming may be made more prosperous and our life upon the farm may be still worth the living.

THE CHAIRMAN: I have visited some of the foreign countries where Mr. Ellsworth has been, and can assure you that he has told you many truths and no lies about it, and has also given you some excellent advice in regard to co-operation. I believe that the matter of co-operation means the success of the farmers of this country, and until we get it we will not come into our own.

The remarks made about the women working reminds me of one that I saw milking a very fine Ayrshire cow; I watched her for a moment; she looked up to me and seemed to be interested to think that I was watching her. I said to her, "we make the men do that in our country." She, with a most wistful look on her face said; "I wish they did here."

Unless there are some questions which you wish to ask Mr. Ellsworth, I believe this closes the exercises of the afternoon.

## EVENING SESSION

8 P.M.

## Music.

PROF. R. E. DODGE: One of the largest problems that every community has, is the question of educating its youth, particularly the education of the youth in real preparation for the life that they must lead when they go into the outer world. I think probably the farmers in our rural communities in Connecticut and many other states, do not pay sufficient attention to the education of our children from a broad as well as practical standpoint. The size of this audience, for instance, as compared with the size of the audience in the afternoon is another fact which emphasises the truth that we are paying more money in the state of Connecticut to the men who are feeding our calves and cows and pigs than we are to the people who are teaching our children in our rural schools. I mean by that, that the ordinary farm hand has more money left at the end of the year than the person that we ask to teach in our rural schools. That means that we have the wrong idea of rural education, and I am afraid that that is true, not only in the neighboring states but over a good deal of the country. A few things have been done in rural education in the last few years—things of great significance, that have been done in a practical way and have been done by people who have been brought up in rural homes. If there is anything that we would dislike, it would be to have it done by philanthropic and missionary work; we want to have people come in and work with us and help us solve our problems because they know what those problems are. The important work in rural education, I think, involves co-operation and work of those people who know what rural life is, who love the soil and who like to get their hand on the skin of a cow. We have with us to-night as a speaker on this topic of rural education, a young woman whom I have known for years as a student and friend, who has had this training and more; a country born girl, raised on a farm, who has taught in the rural schools, who knows what it is to open up the old district school with the snow three feet deep and no fire, and who has made a study of rural education her life work, and has made a record therein, who I think is qualified. At present she is at the head of a large department of the Illinois State University. I wish we had all the students from the State of Connecticut to meet her. It is certainly a pleasure to introduce to you Miss Mabel Carney of the Illinois State University, who will speak on Rural Education.

## **"ELEMENTARY SCHOOL EDUCATION AS EFFECT- ING THE RURAL LIFE PROBLEM."**

MISS MABEL CARNEY: Mr. Chairman and Friends of Connecticut. When I first received an invitation to come here this evening and talk to you on the question of rural education, I confess that I hesitated, because very frequently we are likely to be a misfit when we get too far from home. At least I find that to be true in my own case, and I thought that it might not be the best thing in the world for me to come here this evening; yet I am very glad after all that I did come, because I think that you in Connecticut and we farmers, and rural teachers and other rural workers in the state of Illinois, have a great deal in common after all. One thing that we have in common is the recognition of the significance of this great question of rural education; the general significance of rural welfare. I do know that in coming to Connecticut I am coming to a manufacturing state. I come from a state where agriculture is still our chief industry. I come to a state where there are only 900 little country schools, from a state where there are 10,615; and perhaps it is well for us to go across the prairie at times and to exchange our points of view; and so, with this much of an explanation I am going to start outright and tell you some of those things that I think to be true, regarding the great need for a new rural education.

In the state of Connecticut, where manufacturing is, of course, the chief industry, farming and rural interests are still important, and talking for the nation as a whole, agriculture and rural welfare are two of our greatest problems. While it is true that in some of our large states, a third of our people only are gaining their living directly from the land, still to-day farming remains the necessary basal industry of society, and to-day there are 12 million boys and girls out in our country schools; in some states, like my own, 350,000 country children trudge over the muddy roads in March and May and April to the little white school house.

There has been a great deal said lately about our rural problems. I was glad to be able to arrive in time to hear part of the discussions at least on the afternoon program, I heard one man speak well of the dairy industry and another discuss this fundamental question of rural co-operation. Each man told you what the real problem was; that it was a problem of doing those different things in which they were interested; at any rate I know of any number of our farmers at home who will stand up and talk for hours, one will tell us that the great problem is rye, another grass, and another will stand up and say that the problem is animal farming. I am here to-night to say to you that the real rural problem, at least as I see it, is the problem of humanity, and by that I mean, that it is the problem of the ordinary human beings on the farm. I think Dean Bailey of Cornell, who is really the greatest rural leader, said that the real rural problem of to-day is the problem of keeping on out in the country, on our farms the civilization of which maintains itself against city influences and equals the best civilization in American life to-day. Now, I think that could be put more simply in just this way; that the real rural problem to-day is the problem of getting standard people in the country. I take it that this problem has everything to do with rural education, because education is life and reflects life at every turn; and if in the country, if out on the farms of the middle west and on the farms or on the great ranches of the far west and on the plantations of the south, and all over this great nation of ours, we are to have a farm life, a rural life which can hold its own against the call of the city, that rural life must be built up through our rural educational system; and that is why rural education is of such tremendous importance to us here this evening.

Now before I come to the school question I want to mention another thought as a back ground, for what I am going to say, and that is this; that in building up our farm life, whether it be in the east, or in the middle west or in the far west—wherever it be—there is one idea at least which must be emphasized, and that is what I would term the community idea. The pioneer farmer who started from the

Atlantic seaboard with his goods in his covered wagon and travelled through the middle west and took up his land there and settled—that pioneer farmer was a man of strong individualism, and is to-day, usually an old, grey-bearded man; many of them are most conservative people, owing to the conditions in which they have lived. We have this early type of farmer, a man that is an individualist; and when something has to be done in the community, he measures its value by its own personal standards. We have had so much of that in country life that it has left its stamp on rural situations everywhere. The farmer of to-day is said by the socialists to be the great individualist of our time. And that is true. When you want people that will stand on their own feet; when you want to meet men and women who have their own ideas, go into the country and there you will find them. That is the reason for all this discussion upon co-operation here this afternoon; because a farmer is still an individualist. But the new type of farmer who is with us now and who will control our welfare in the future, is a man who must understand the community and must work for his little local community; and in doing that, he will lead up to his county, to his state, to his nation, and work along broad, general lines, for the welfare of all.

Now there are several agencies in a country community that I want merely to suggest here this evening and then discuss the school especially—several agencies which can be used for the building up of this community idea. One of them is the home. I speak of the home as a fundamental institution of society, and so it is. We talk a great deal about the importance of the farm home. Volumes have been written on it; many volumes more must be written before we realize our hopes, perhaps, in that line. One thing is certain; the farm home is important, whether it be in the old east or out in the middle west; and the farmers are certainly beginning to realize it. Then there is the church, which was to be discussed here this evening after I had finished. I can't say much about the church, but the church is an institution which is not dead by any means, as some seem to think, which will give you actual community life, as it has done in the past—a

great heritage, and which will uphold the highest idealism among the people, both personally and in a community sense. I wish Dr. Wilson were here to-night, because there is no man, anywhere, who is better able to enunciate the part which the church has to play in the upbuilding of country life.

Then there is the farmer's association, the Grange. You have the Grange in this state. We have Granges too, though not so many as you have. Then there are the Farmer's Institutes which have done their large part and will still do a greater part, and the farmer's clubs and all the other types of farmers' organizations. And then we have in addition to all those, the Country School.

Now I am here with you this evening to discuss particularly the country school and what it can do along those lines; and I want you to see that thus far I have tried to suggest that the country school aims at more than teaching the children alone. That is the great service, and of course the primary service for which the school is established; but the country school of the future which is to hold its own and to emulate country life as it must be emulated, must teach not only the children but the parents as well. The school, after all, is the very best agency for this building up of community life. I know that you may be thinking that your little white schools out here in the hills of Connecticut are institutions for the children alone; but I am sure that you all remember, but a short time ago, when that little white school house on the hill was the meeting place of the whole community, if it is not so to-day. I can myself remember when our little school house brought together all the men, women and children of the country; when it was in every sense a community center. The school has an advantage for serving in just that way, and the reason that you people met in the early day is, you had that remarkable institution, the country school, the "destrict" school that we read about in story yet, because you made it a community institution, ministering to all the needs of the primitive community. Our country school of the future must do, in this day, what the country school of the past has done—must minister to all the needs of the



community. The school is well prepared to do this in certain ways. For one reason you can see yourselves that this whole problem is a problem of education, and that little white school house out there on the hills or on the prairie as the local agency of education, is the very best meeting place, the very best point of attack upon this problem of rural improvement. Now what do I mean by that? I mean distinctly, that if you want improvement in the rural community, if you want scientific farming, if you want better breeds of live stock, you will get those things if they come in through the little school, because in that school we have the farmers of the future, and in that school too we may bring together the farmers of the present, and we can put before them there in that little school those ideas in such a way that they can modify the life of the community and change the things that should be changed. I will show you that more concretely in a moment. The country school is a community. If Dr. Wilson were here he would probably show you how the church can be a great community institution. It is true that the little country church can be a community institution if it is properly managed, with the right type of minister; but in a certain sense the church can never be the community center, at least not immediately, that the country school can be, because the country school is a community institution. Every man and woman in the community has an interest in the school; the old bachelor who has no children and whose only interest is that of taxes, still has an interest in that little school; it may be that his interest is in keeping the taxes as low as possible; but every person in the community, I say is in some way in direct contact with the little school. It is supported by state funds, and it is a community institution. And in another way still, the little white school house possesses an advantage, because it exists everywhere. I might ride out in my state for forty miles through the country and not pass a single little country church. Now that sounds like paganism to some of you good eastern people I suppose; yet I don't know but what I would rather have too few churches than too many; but anyway, in our part of the that they had not had before. Well the result of it was that we

country the little country churches are very few and far between; you ride ten miles and you will find a little white country school, and those little school houses are the very centers of those districts. Our country school possesses an advantage because it does exist everywhere; they are right before us, so that we may use them.

Now with these general statements I will come down to the little country school, working along those lines that I have enumerated; and if you will pardon me, I am going to make this very concrete and rather personal. I am going to tell you about some of my own work in the little school. Now I am not telling you this because it is unusual, because I could tell ten stories of country teachers who have done far better work than I have done, and I am not telling it because I like to tell about my own work, but I am telling it to you simply because I want you to see in a very definite and concrete way what I mean when I speak about the country school as an agency for community and educational improvement. Out in our state, in Illinois, we have as I have told you 10,000 country schools; many of those are efficient, but thousands of them are not, just as it is with you. I remember the little school house that I am going to talk to you about; I remember the first time I saw it, a little school house out on the prairie set up about three feet on posts, dilapidated, with door open and the cobs scattered over the yard—we burn cobs in our state, and in handling them they blow all over, and they are left lying on the ground. I went to work there one term, and then I asked the directors to visit the school house so that I could show those men what we could do in our little school and try to picture to them what an efficient country school could be. I thought at the time that it would probably ruin the whole plan, but I discovered later that I had done the very best thing that could be done. The great difficulty to-day in rural education is, that the farmers and rural teachers and those who are responsible for the rural education do not realize the possibilities; and that evening when I asked those men and their wives up and pictured to them what our little school house could be, they smiled at the picture, but nevertheless it stuck in their minds and it gave them an image of efficiency

called a meeting of the district and we worked with them, and I went around and visited with the people, and finally we had a little school house with a basement under it; we made one large room of that basement, 21 feet square, we had work benches, we had a laboratory table, we had a little kitchen table, we had a furnace over in one corner and a store-room in which to put all the supplies that a school teacher is expected to take charge of; after we had done all those things we remodeled the up stairs; what a lot of truck we raked out of that building, just like many another country school; but it was clean at least and the difference in the spirit of those children was manifest in their faces the moment they stepped over the threshold, because here was a new school, to them; new at least in appearance. I want to tell you more especially of the work that lay behind this, and that was the social work, I mean the community work. I saw early in my work that if I was going to get those people to help me, it would be necessary to make that little school a common meeting ground for them all; and so I started to work, the children and myself. The first thing I did was to hire a horse and buggy and go around that district and visit every man, woman and child in the community, staying over night with the family frequently; at least visiting them a little; talking to them about their Johnnie and Susie and all their other children; and after that was done, it was easy. One of the little girls came in and happened to pick up a book; she saw a picture of a little girls' club; she wanted to know why we couldn't have a girls' club in our school. I was anxious for that, but I wanted it to come from others. We started a little girls' club in that little school house, with only 11 little country girls, in the beginning, but in three years that little club grew, until there was a membership of 42 girls who not only came from the little local district, but from five or six districts around. The girls were coming in there from five and six miles to the club meetings. They took up singing and music; they rented a piano and later bought and paid for it. I haven't time to tell you further what was done; but in getting those children together I was able to get their parents, because where the children go and where the interests of the chil-

children are, there the parents will be. About Thanksgiving time I asked the parents, the men, to come down to the school house; they did, and we started there a parents' club finally, which met in the evenings. I brought my problems before the parents' club; they had a little lecture course, and that little country club finally extended its interests to the problems of the community. There in the school house on the prairie was a community center which became a thing of importance to all the people in that district. Now that is what the country school is doing socially. That is what it can be. There was more scientific farming in that district than there had been before. Men who had been burning their cornstalks—I don't know but what you consider it a crime in the east, but those men on the prairie had been burning their stalks—took up this question of scientific agriculture; and in three or four years these little discussions wrought a great change in the practical life of the farming community. So much for the social life. I am here to-night to talk to you more especially on the educational side. I want to tell you a little bit about teaching here. I don't mean the kind of teaching done by a girl from the eighth grade, who was teaching in the country school—the blind leading the blind—and she, poor child, was teaching those children as she herself had been taught. They were following a few little text books, and they seemed to have no conception whatever of the relation of their school to the community. Those boys and girls were doing sums in arithmetic which were entirely related to New York City or Chicago or some other large city, and they had not the slightest conception of what those things really meant. So it was my duty, as I was there to work with those children to try to get them to learn things relating to the farm and to their own lives. For instance when the little boys that come to school are beginning reading, we take a little sand table and put them to work and tell them to make a little farm upon it, with a little farm house and a little barn, and horses and cattle and pigs. Let the children work those out when they first came to school; let them talk about them. One little one told me about her dog Jack, and another about her dog

Rover and other pets and animals they had on the farm. In the mean time we were getting acquainted a little, so that within a few days, while this feature was being planned, the children knew me and I knew them, and then it was time for us to read. In the mean time I talked with them about many things in which they were interested. So those little boys began to read about the farm, chickens, dogs, the very things that were done at home. In arithmetic they went down to the farm and saw where a farmer was building a shed, and measured the boards as a carpenter measures them, and as a result, they had learned something of the meaning of measuring lumber. Percentage and all that can be taught just as well by the use of shrinkage in corn or the use of fertilizers or drainage problems and all those things, and it was taught so here. As to geography, I will say that just as much geography may be taught in your own little school as there is in many a page of text book. Those things—this adaption of the old subject matter became my first problem; but it is true, and there is no doubt about it, that the country school is behind in its course. We need to-day in our country schools to have new subjects. As I have said, we have to go slowly; we have to get the farmers interested; we asked the farmers to come and tell us about the sheep industry as they view it on their own farms, and to tell us about mules and other things, and those farmers came. Then we had a little domestic science. Some of those children were eating cold luncheons, and we would give them something warm at noon; we got a little stove and gave them a hot meal. This appealed to the parent most forcibly, because there is not a housewife in the country who is not glad to have her children have plenty to eat, whatever else they don't have. This is not done in the way of a manual training school, or the kindergarten, but in a natural, ordinary way, and there is no farmer in the community who would not think that it is just about the right thing to do, in the way that we go at it.

Now I must not take so long on that point, but I wanted to give you an illustration. I do want to say this; that if we are to work out our country schools in some such way as this—and this is a suggestion—there are certain clearly de-

finer needs, and one of those is, the need for trained teachers for country schools. I don't know your situation here in Connecticut, but I am confident that from the east to the west, from the north to the south, we must bring forth, as Dean Bailey of Cornell says, a new race of country teachers who will be willing to devote their time to that work. In Central Illinois we have a normal school; in that normal school are seven or eight hundred students, who are preparing to teach; among them a number are expecting to teach in the little country schools, and those young people are preparing for it by taking the country school course; they are taking rural sociology, rural pedagogy, etc., and those young men and women discuss rural problems with enthusiasm. In training those young men and women for the future, who will know what to do, and do it effectually, we must take the schools out of politics. We must not elect our county superintendents because they are democrats or republicans. We must change all that, and see that the children get the very best of training from the best teachers. Another thing; we are spending on an average only \$13. for the country children, while the children in the city are getting upon the average \$33. per capita per year. Now there is a great difference between the privileges of the country children and the city children. But the worst feature of all is that the money that is spent in the country does not give value received. That \$30. teacher, my friends, is the poorest investment that ever a school board made, and the farmers are beginning to see that. I know of country schools out there in Illinois that are paying \$100 and \$110 a month to country teachers; I know dozens and dozens of them that are paying anywhere from \$65 to \$90 and I know of hundreds of others that are paying in the neighborhood of \$55, \$60 and \$65; I also know of many that are paying only \$40; but I believe that the country schools are measured, and will be measured by the ability of the teacher; because as the teacher is, so is the school, and the teacher is the most important investment you can make. If you are measuring those children of yours out in your district by a \$35, \$30 or \$40 a month school teacher, about the best thing that you can do is to demand

better training and pay better prices for it, because no investment will yield such good returns. Another matter that I want to bring to your attention this evening is the importance of bringing these little schools together; make them into larger districts and bring about the establishment of consolidated country schools. I know of one instance where three little separate schools seven years ago combined into one district; they had 24 acres of land; they have a beautiful school house, a modern building in every sense, with modern equipment. They put into it a kitchen, a manual training shop, and on the third floor they have a large assembly room where they meet for social and community work. They have a course of study related to agriculture; they have a class judging the horses or cattle or swine that have been brought down from some of the neighboring farms. It is a school very closely connected with community life. The farmers themselves go into the school and teach their boys. Now that is the kind of country school we are looking to in our state, because this school is the center of this community, and the benefits of cooperation in a community—this community idea is exemplified by education as it has been brought out in that community by those good farmers and developed through this consolidated school.

I must not keep you too long, but there are just a few suggestions that I would like to make. I don't know the conditions in Connecticut, as I told you in the beginning. I don't pretend to be able to give you any suggestions that are not open to criticism; but I will say this, that as the State Board of Agriculture you ought surely to look into this situation of rural education and to bring to pass in this state some changes that will be good for your state and good for your children. It seems to me that there should certainly be some steps taken toward preparing teachers for the country. Your normal schools ought to prepare at least a limited number of teachers for your rural schools, people who can go out and be leaders in this new spirit of rural education. There is one state out near us which has done great things along that line, and it has done this through its city schools. Agriculture is like history, the children need to

know something about it, because it is a great industry; just as we teach the country children on manufacturing, so should we teach our city children a little, at least, about agriculture. The State of Minnesota has put in her city schools courses in agriculture, and has generously aided them to the extent of \$2,500 a year. They have professors, men and women, who have studied the rural problem, who have given their lives to it and who see the needs of those country schools.

You have already done something with consolidation. I am here to-night to say that I believe it to be the very best thing that can be done for country children, when it is properly done; but when we consolidate our schools, let us make them country schools, let us keep them in spirit and harmony with country life. I think there is danger in oversystematizing things. It all depends upon the local people. If the local people have the right spirit it will work out the salvation of their children. It seems to me that the State Board of Agriculture, which has the interests of the people so closely at heart, as this one seems to have, can do great service to rural life if it will bring together the forces—I know that you are doing that—for, if country life is to progress at its best, we must get together the church people, teachers and farmers, and study this problem. We are working at it out in Illinois; we have developed in the last seven years a great study; we have organized what we call the Illinois Federation for Rural Progress. That organization is not a new thing exactly, it is a union of the other organizations of the state. It holds meetings once a year at this time; it brings together all the rural conditions—not the breeding of cattle or livestock or seeding, but the human side; brings together the church people, the school people and the others in a mixed conference in a way that we have never found possible before. The Grange people come in and tell their story, and the Minister hears about that; the Minister tells his story and the Grange people hear about that, and the result has been very beneficial along the lines of rural improvement. I believe that the State Board of Agriculture is in a position to do this sort of thing. I may



be wrong. As I told you when I began, I don't pretend to be a doctor for the ills of other states, but I tell you what the situation is in my own state, after meeting with hundreds of farmers in their little school houses and talking over the problems with them.

There is one thing which I touched upon in the beginning which is predominant, because I think it a great need, and that is, a need for a new type of idealism in rural life. We are just beginning to see its possibilities, and everywhere, in the middle west, east north and south we need those who will preach this new type of idealism, in the country schools, in the country churches.

THE CHAIRMAN: If no one cares to ask Miss Carney any questions we will proceed. As has already been intimated to you, the program for the evening included a discussion of the Future of the Rural Church and some of its Problems, and we expected to have Dr. Wilson, President of the Missionary Education Movement of New York City speak to us upon this subject, but a telegram was received this morning stating that he was ill in bed, and would be unable to be here, so that we must leave this topic for later discussion.

There is, however a topic which is very interesting to many of us, and that is the Workmen's Compensation Act; and when we want topics discussed here, we try to go to headquarters to find somebody who knows what he is talking about, and I believe that the Honorable George B. Chandler has the most information in reference to the Workmen's Compensation Act. I am very glad to introduce him to this audience.

Mr. Chandler responded to the introduction and gave a very interesting and instructive address upon the Compensation Act and its relation especially to the farmer. Mr. Chandler was plied with questions and those present received a great deal of information in regard to the law which has recently been placed upon our statute book.

Following this address, the meeting was adjourned until Wednesday morning, December 17th at 10.00 A. M. At the above mentioned hour, the meeting was called to order by Vice-President Lee, and Dr. Hugh G. Van Pelt of Waterloo, Iowa, was introduced, who made an instructive address in relation to the raising of soiling crops. After Dr. Van Pelt's Address, Vice-President Lee again took charge of the meeting and called the attention of the audience to a bundle of wheat which was displayed on the platform by stating:

I see here a very good bundle of wheat; that is, it looks good to me; and the label on it says raised by George V. Smith, Willington, Connecticut, production of 40 bushels to the acre. If we had time, I should like to ask Mr. Smith to tell us how he raised such a large crop.

The next subject on our program this morning is "Sheep from Day to Day." I have an idea that many of you that raise sheep, when you come in contact with dogs, find that you have more sheep on some days than you had on others.

The gentleman who will speak to you on that subject is Prof. J. B. McLean of Amherst Agricultural College. I take great pleasure in introducing Prof. Mc Lean.

PROF. J. B. MC LEAN: Mr. Chairman, Ladies and Gentlemen: It gives me great pleasure to be introduced to this audience. It is gratifying to me to meet your organization here.

I do not feel that I am sufficiently strong on sheep to talk to you men as you ought to be talked to on the sheep subject. I used to think I knew a great deal about sheep, but since I have come to Massachusetts I have talked almost exclusively on dairy cattle; consequently my confidence in myself regarding sheep has become a little bit shaken.

Before beginning to read my paper I want to give you a little information that might be of real value to you, because you are all interested in alfalfa; and I am going to give it to you for what it is worth. To my knowledge, Massachusetts and New England conditions are such that alfalfa is not easily grown on all farms and on all types of soil; we have too many different contours, up-hill and down hill, on the side hill and in the bottom; it is a serious problem to get a type or grade of alfalfa that will winter through. Prof. Clink of Mc Donald College near Montreal has done a great deal of work with alfalfa, trying out a great many different varieties. He visited me last summer for a couple of weeks, incidental to our summer school, and he told me an experience of his in his work that I am going to pass on to you for what it is worth. As you all know, last winter was an exceedingly hard winter on alfalfa, and a great deal of the alfalfa in New England and all through the east was killed. Clink told me that he had two varieties that were carried beyond the experimental stage, that lived through, no matter where he found them; on the top of the hill, or on the side or on the level at the bottom; he could pick out those two varieties, and all the other varieties were winter killed. He said that meant a great deal to him, that hard winter, in the selection of suitable types of alfalfa for eastern Canada; and Eastern Canada is not very far away from us and the conditions are not very much different, and I thought it might be interesting to you to get the names of those alfalfas. I think, but I am not absolutely certain, that one of them was the Grimm, and the other was the Canadian Variegated; but I will not vouch for the absolute correctness of the names of those two types. Prof. Clink, I am sure, would be glad to do anything he can for anyone who cares to correspond with him on that subject.

If you will excuse me I shall read my paper. I have chosen to talk on "The Sheep Day by Day," because I think here lies the solution of the question of caring for sheep. If a man can succeed with sheep, if he can make sheep do well, if they are productive, he will continue to produce sheep; and the man who does not know how to handle sheep and had difficulty with them, finds the flock deteriorating on his hands, very soon goes out of the business; consequently I am going to run over the care and management of sheep at the different seasons of the year, trying to touch on problems as I have met them myself.

To you, the sheep breeders of Connecticut, it is scarcely necessary for me to dwell upon the importance of a well developed mutton and wool producing business, nor the op-

portunities which it offers for financial emolument. It is not entirely out of place that a passing glance be cast upon the earlier developments of the industry for which the state was once famous, and from it perhaps be gleaned some knowledge of the direction which the business must hereafter follow. That sheep breeding was once a very prominent profession in Connecticut and in all New England is well known. During the first quarter of the nineteenth century, many thousands of sheep were imported, mostly into New England and the adjoining states. These were of the best of Europe, and represented the result of a century or more of careful breeding work in France and Spain, for most of them were of the fine wool type. These were established upon excellent farms in these eastern states, and from them were developed many world-famous flocks. From these as sources, the middle west and the far west levied draft after draft for stock and flock purposes, until with decadence in the industry in the east and through the influence of various forces, the balance of power has shifted from us, and the the western states have wrested from us the distinctive title of the sheep breeding section of the United States. The hill regions of Ohio, the high, dry plains of Texas, and the slopes of the Rockies which face the setting sun, are the breeding grounds and the producing quarters of America's wool and mutton producers.

Various factors have contributed to change the features of the sheep industry in this country. In the earlier years, the wool market was the only one considered by the breeders. Our closer relations with England and the encouragement given to woollen manufacturing, by the government, together with our lesser population, were some of the reasons for this. Increasing population, the development of cotton manufacturing, and the sporadic reductions in protective tariff regulations relating to wool, led the sheep breeder to the safe conclusion that to carry him past the depressive periods due to tariff tinkering, he must make the carcass of his sheep profitable. Consequently, the importation of the English mutton breeds has arisen. More and more they spread, glacier-like, over the country. Their influence is to be seen throughout the flocks of the range country; in the middle west they predominate, while in the lap of the East—the Merino home in America, they are as prevalent as their forerunners. There is just one good reason for this. We cannot depend upon wool alone for profitable returns from sheep husbandry. The market is too variable, cost of production too high and the yield inadequate. Fine wools may, and I think should, be maintained in New England in breed-

ing flocks of pure breeds, but the farmer whose entire returns from his flock come from the consumer, must have more than wool to sell, if he is to break even.

New England is naturally a sheep country. Nearly all of Vermont, much of Massachusetts and a large part of Connecticut is, in my opinion, naturally better adapted to sheep than to any other live stock industry. We have really in many ways worked against nature and catered to man, for we have made this territory famous around the world for our dairy cattle. Connecticut and Massachusetts can each show more dairy cattle per acre, and proportionately, more first-class breeding herds, than any other state in the Union. These states have produced more famous and influential animals and have made larger contributions, constructively, to the various dairy cattle breeds, than has any other state; yet as a rule, oats, nor barley, nor alfalfa, nor root crops, nor even corn, has been grown in great quantities. Our soil is light, our fields rough, our winters not short; thus, many factors generally contributing to a cattle industry, have not favored us. We have worked hard in the face of many difficulties; we have put in long hours, persistently, without too great remuneration; but we have achieved. And yet, New England is a sheep country; we might almost say, a sheep country without sheep. The climate, the soil, the moisture, the altitude are all favorable. Unfortunately, it is also a dog country, and the dogs have had the long end of it. So long as there are more dogs than sheep, they will always have the long end of it. The best way I can see to eradicate dogs is to keep more sheep. If every man had a few sheep or many sheep, the dogs would be taken care of, because the value of sheep would be demonstrated. But I am not here to talk of dogs.

Before I leave this phase of the question, might I suggest another reason for the scarcity of sheep in your state and in New England generally? Too often sheep are kept as a side line on the farm. There is no fault in this of itself, but, like many another good side line, they are neglected and left too much to take care of themselves. Truly, the eye of the master fatteneth the flock. This must not be forgotten. Unless a man loves sheep, and knows them, and studies them, and is willing to work for them, he would better have none, for there is nothing more discouraging than a small flock of unthrifty sheep. We have been too long without sheep; our boys have grown up to be men without associating with flocks; we do not know them, we do not want them, because we have not learned to love them, and so we do not have them—but have our dogs instead.

In treating of the management of the flock, I shall take up the problems that have presented themselves to me, and in doing so, that I may fully cover the situation, I shall discuss the care of the flock for one year, beginning with the autumn season. At this time of the year, what concerns the shepherd most is, to get his sheep in good, thrifty condition for the winter, and to get the flock all bred.

The time of breeding depends upon the market to which one caters, more than anything else. If one is breeding pure breeds, it is desirable to have the lambs dropped early, in order to obtain good growth and size. Where housing conditions are adequate, pure breeds should be dropped in March in this section, or, if the lambs are intended for show, even earlier is desirable. When lambs are raised for an early or special market, the time of birth will be regulated by that trade. If lambs are not marketed until the late summer, or early fall, they should be born about three weeks before turning to pasture in the spring. The Merinos, Tunis and Dorsets will breed at unusual periods of the year, and so are adapted to the production of early winter or fall lambs. The other breeds will not breed until the cooler weather of autumn sets in, consequently ewes are generally bred in late September or October.

After weaning the lambs, the ewes should be put in a more or less short, dry pasture, until all milk secretion ceases. This will occupy a period of about three weeks. At about the first of September, the ewes should be put in an especially good pasture. This may be of second growth clover or of rape. By sowing rape, or cow horn turnips in the cornfield at the last cultivation, an excellent growth, splendidly adapted to sheep or other young stock, is obtained by the tenth of September. The sheep may be turned into the cornfield before the silage is harvested. After the summer season and the drying off period of August, the sheep derive from the luscious, luxuriant rape or clover fields, a stimulus to vitality. They thrive, they begin to gain in flesh, and especially in vigor; they become possessed of a fullness of life. In about three weeks time they will begin to breed, and most of them will become bred within a period of three weeks.

It has been found by scientific investigators, that a sheep in a low physical condition, does not secrete generally more than one ovum, while ewes in a thrifty condition secrete generally two, and sometimes three. Ewes in an over-fatted condition frequently suffer an impairment of the ovarian tissue, precluding any secretive activity. There are thousands of spermatozoa in the seminal fluid secreted by the

rams, so that the number of offspring produced at one time by any ewe, is dependent upon the ewe, not upon the ram; and the number is determined by the health and vigor of the ewe; or, in other words, by the method of management. Herein lies the secret and the advantage of flushing ewes before mating.

The fall is a good time to cull the flock. A poor ram should never be used; neither should a good ram have to be used on undesirable ewes. Cull out the shy breeders; avoid keeping the ewes that produce only singles. Ewes that will not fatten, that are always running at the nose, whose coats stand on end and are dry and harsh; in fact, the ewes which, after taking pains, you cannot restore to a healthy condition, should all be started towards the butcher's. Better a few good ones than a multitude of diseased, unprofitable weeds.

A ram one year old or older, running in the field with the flock, will take care of fifty ewes. For most farms, this is the most feasible management. Where one has a valuable ram, whose services he wishes to extend as far as possible, the flock may be brought to the sheds each night, at which time the ram may be turned with them.

This method has its advantages at all times, since by putting red or yellow ochre upon the ram's breast, the bred ewes will be marked and their number noted, so that the exact date of lambing may be anticipated.

A man who keeps sheep should keep at least in the vicinity of fifty breeding ewes. The full services of one ram will thus be obtained. This is a sufficient number to demand a man's attention. When a man has only a dozen sheep, they seem to be too trifling to deserve care or thought. A flock of fifty will command the attention which they need to insure success. Especially is this true at lambing time, and the whole profits or losses of the year are very largely determined by the percentage of lambs saved at birth.

Close housing is not desirable for a flock of sheep. A shed open to the south, which provides plenty of fresh air, dry footing, dry bedding and freedom from drafts, will meet the needs of this locality. Let the sheep run in and out at will. Give them access to the old sod fields until the snows prevent; give them room to roam. When closer yarding becomes a necessity, still avoid shutting the doors upon them. Hardy, healthy ewes enjoy sleeping out of doors as much as do hardy, healthy boys. Feed some, if not all of the roughage, outside. Make the doors wide, and divide the flock, especially as lambing time approaches. The ram, the unbred yearlings, and the barren ewes, should be removed

from the rest of the flock in January, if it has not been done earlier. Put the young ewes with their first lambs by themselves, so that they may be fed extra. Full grown sheep in good condition, may be carried until nearly lambing time, without grain. To do this, good clover or alfalfa hay is needed. Pea straw is next in value. Timothy hay is useless for sheep, though rowen is excellent. Turnips have no equal for all ages of stock. Silage can be used, but is not a safe feed—trouble seems to come from mould, or other lack of quality. With good hay, a first class quality of silage may be satisfactorily fed. I would never build a silo for sheep; neither would I attempt to profitably carry sheep, without a root cellar and a few acres of turnips. Yet turnips may be abused. Too heavy feeding causes scours. Also, many shepherds claim that the too liberal use of succulent feeds causes large, watery weak lambs at birth. Experience at the Iowa Experiment Station and the Indiana Station agree with this. For five weeks before lambing, I would feed all ewes one half pound grain per day, composed of oats and bran, equal parts by weight. These are not the only good feeds, however. Always see that the ram has exercise. Never feed him mangels. Try to have alfalfa, clover, or pea hay for him.

Keep the yards clean and dry. Foul feet come from wet, soggy or muddy yards, and prevention is easier than curing. Examine the feet of the ram and of the flock every month, to see that they are growing evenly. Use a sharp jack-knife to shorten the toes and trim down the outer walls. Foot rot, or foul feet, usually develops from housing in filthy, damp yards, and more frequently affects the ram, on account of methods of handling him. Give his feet special care. If the feet are beginning to get foul or tender, stand the affected animal in a flat platform or pan-like tank, containing  $1\frac{1}{2}$  to 2 inches of a solution of Zenoleum, or other coal tar product, or copper sulphate solution.

Ewes carry their lambs 147 to 150 days. They should be separated from the rest of the flock about one week previous to lambing. The udder should be trimmed before lambing. Unless the ewe is in need of assistance, she should not be annoyed at time of parturition. No ewe due to lamb soon, should ever be set up on her haunches.

The most important thing with a new-born lamb after the ewe has cleansed and dried it, is to get it to stand and suck. With young ewes especially, it is frequently necessary to assist the lamb to its first meal. Frequently lambs are weak and must be aided. Warmth is one of the best stimulants for a weak lamb. Thick woollen cloths previously warmed at a stove, serve well for this purpose. If it does



not gain strength by feeding and by keeping warm, a stimulant such as whiskey will be required. During the first few hours, the weak lamb should be helped to a dozen meals. For the first three days, keep the ewe and lamb by themselves.

For various reasons, it may be necessary to hand-raise a few lambs. For this use cow's milk, fed from a bottle, with a rubber cot or nipple attached. A newly dropped lamb only requires two teaspoonfuls every hour. The milk should be from a fresh cow, and at body heat. If scours trouble such a lamb, boil the milk for a few meals, or add a teaspoonful of lome water to the milk.

Feed grain to lambs as soon as they will eat. Corn is good, but a mixture of bran and oil meal, equal parts by weight, is better. It is hard to hurt a lamb with such a ration. Arrange a creep, and place some meal in the trough; in two or three days the lamb will not only have found the meal, but have learned to eat. Give all they will eat three times a day. By the time they are six weeks old they will eat  $\frac{1}{2}$  lb per lamb per day. Do not exceed this, with breeding stock. Feed the ewes until they are turned to pasture, a mixture of oil meal and bran, using three of the latter to one of the former, by weight. On grass, it will pay better to feed the lambs liberally and to withhold grain from the ewes. Ewes suckling lambs, not on pasture, especially, require turnips (or silage) 4 to 5 lbs. per day.

Castrate and dock all lambs by the time they are two weeks old. I think it is best to dock the ram lambs after they have recovered from the effects of castration.

Sheep should be dipped in the early autumn, shortly before they expect to go into winter quarters, and again in the spring, before going to pasture. The dipping is done much more easily and effectively if the sheep have been clipped first. Use a 2% solution of Zenoleum. This, or the other coal tar dips, are rather injurious to the wool, so that if one has many sheep and is dipping previous to shearing, it will be advisable to prepare the standard dip recommended by the U. S. Government. A tank can be made of pine boards, zinc or concrete. Make it 20 feet long, 2 feet wide at the top and 1 foot wide at the bottom and 5 feet deep. A shorter tank maybe used. One end should drop down perpendicularly, the depth should extend for one third the length, and the other end gradually slope to the top. Here the sheep pass out, and the end should be cleated, to form steps for the sheep. There should be a drainage stand, on which the sheep may stand until they cease dripping. Sheep should not be dipped on a cold, raw or windy day; they take cold

too easily. A second dipping should follow the first, at an interval of ten days. Do not expect your sheep or lambs to do well if they are ticky. Dip, and give them a chance. The lambs may be easily dipped in a barrel.

Mix sulphur with coarse grained salt, until the mixture has a yellowish color, and keep this mixture under cover, but available for the sheep, throughout the summer. Rock salt is not as desirable. Sporadic salting is injurious. Always let the sheep have access to fresh running water. Sheep should not be forced to drink stagnant water.

The gadfly gives a good deal of trouble during July and August. This fly deposits the living larva in the nostrils of the sheep, and when doing so, greatly annoys the flock. One will see the sheep shaking its head, stamping, cease and frequently run short distances, in an effort to escape. Wind a small piece of cloth around a shall stick, and with it apply tar that has been warmed to a fluid, to the nostrils of each one of the flock. This will surely pay the flock-master, for the larva, lodged in the nose, crawls up into the nasal sinuses, causing irritation through all the summer and next winter.

Better results are obtained by limiting the flock to small pastures and rotating them. Where permanent pastures are the sole reliance, there is great danger of stomach worm. The eggs are left on the ground and taken in by the grazing lambs. The infection does not trouble aged ewes. So our permanent pastures should be left to the aged flock, but the young lambs should graze only on ground that has been cultivated since the old sheep have been upon it. It is a good plan to provide a rotation of grazing crops for the ewes and lambs, until weaning time. This is not difficult, where lambs are dropped early.

Rye forms the earliest spring pasture. A mixture of early oats, peas, barley and rape will come on to succeed the rye, and by using this mixture in successive sowings, and alternating with newly seeded clover or a rape patch, the sheep and lambs can readily be carried until weaning time. Cabbage affords a large amount of the very best sheep feed, and its use has been to too great an extent overlooked by the general farmer.

Lambs dropped in February can be made to weigh 50 or even 60 pounds by May, and, at prices generally ruling at that time, make their best profits by going to this early market.

In New England, at the present time, the early lamb market should be catered to most. For this market, much may be said in behalf of either Rambouillet or of Dorset

ewes. Dorsets are heavy milkers and prolific breeders, bringing a higher percentage of twins and triplets than any other breed. When well fed, they raise their lambs well, but twins generally are not quite as large as singles, nor do they make quite as fast gains; so that for the earliest market, the Merinos, bringing as they do generally, just one lamb at a birth, and being good milkers, find general favor. Where early lambs constitute the business, worm troubles with the lambs are not encountered, while the Merino types are most resistant to them, and succeed better on permanent pastures; which is another reason for their popularity. For early lambs, good mothers are required. Upon these, the very best kind of a mutton ram should be used. For this work the Southdown has demonstrated his fitness. Shropshires are also good.

Intestinal, round worms, cause a good deal of trouble in sheep, especially in younger stock. Tobacco, copperas, turpentine and blue vitrol have all proven valuable as preventive medicines. Four pounds of tobacco leaves are mixed with one pound of salt; equal weights of salt and copperas are used; while the salt is saturated with turpentine. Keep this treated salt always before the animals. Blue vitrol is best administered in solution, one dram being given to each sheep. Gasoline is also good, and is administered in one to three dram doses, with milk. Veterinarians recommend the placing of the sheep upon its haunches for administration, but I have found less likelihood of strangulation by treating the animal when in a standing position. This same treatment, it is claimed, will dislodge the stomach worm. If lambs are being kept through the winter, it is very advisable to drench them all at weaning time, after a 24 hour fast.

As to the outlook for sheep, I think we generally agree that we ought to have more sheep in New England than we have. I believe that they will make better use of our hills than anything else will. We ought to have them. So far as I can see, it appears to me that the promise of early lambs is a comprehensive solution of the sheep business; that is, to use the Merino types, the Rambouillet, or Dorset or Tunis and breed them so as to have the lambs dropped early and give us an early market, and in that way I think you get as good profits—but not only that, it is the most advisable way of making use of our permanent hill pastures.

MR. SMITH: Speaking about applying tar to the nostrils for gadfly, what kind of tar?

MR. MC LEAN: Ordinary tar. Some put augur holes where the sheep feed and put tar on the holes, so that they tar the holes instead of the sheep. I think it is better to tar the sheep direct.

MR. SMITH: Pine tar instead of coal tar?

PROF. MC LEAN: Pine tar, yes.

THE CHAIRMAN: We have been favored with two good addresses this morning, and we had good talks yesterday. One thing I would like to call to your attention. We had last evening Miss Carney, who addressed us on Rural Schools, one of the greatest problems, I feel, that we have before us to-day; and I want to ask you, one and all in this audience, who were not fortunate enough to be here last night, to read that address. You will find it worth while.

When I moved out to Orange a few years ago, I found the small district school, as far as educating the children in a proper manner, was practically useless, and it resulted in a movement to consolidate those school districts. We went to the town meeting and carried the day by three votes. We went on; we have a \$20,000 school house; we have a good graded school, and that school house has done more for the community than anything that ever happened to it; those children in that graded school are getting a good education; as good as they could get in the city of New Haven. We must take care of the children of those foreigners that have come to our shores. We can reach the parents through these schools, we can reach them through their children; and that is what we must do.

Now I believe that Mr. Stanley has a report to make from his Committee.

MR. STANLEY: Mr. Chairman; the Committee that you appointed to consider the resolution that was handed in yesterday had two meetings; it found at the outset that the questions which this resolution brought up were far-reaching, and that it would take ample consideration and a great deal of time, so that we thought it better to draw up a new resolution, which in a measure would express our disapproval of the pending action of the Federal authorities in regard to the transportation system of the New England States, and especially the New Haven road, and also fully

express our confidence in the apparent intentions of the new Board of Directors, in their efforts to solve the problems that are coming before them. With your permission I will read the new resolution.

WHEREAS: The agricultural awakening of Connecticut, and of all New England, being largely dependent upon an efficient transportation service, for a profitable life, and

WHEREAS: The uniting of several of our great railroads into one system, and the close working arrangement with the electric lines passing our farms means much in the way of better service, we view with regret the growing tendency to separate them in their actions and service:

THEREFORE, BE IT RESOLVED: That we, the farmers of Connecticut, protest against the separation of the Boston and Maine Railroad from the New York, New Haven and Hartford Railroad, and also the separation of the electric lines; and stand ready to support the officers and directors of The New York, New Haven and Hartford Railroad Company in the proper discharge of the perplexing duties now confronting them.

MR. STANLEY: I move that the report be adopted.  
Motion seconded.

THE CHAIRMAN: (After putting motion) Are there any remarks?

MR. DUFFY: As I was a spectator in the committee I didn't vote for the resolution, but I will not vote against it. I objected to it yesterday, and I think that point of criticism of the National administration and the officers who enforce the laws of this country, should be removed from this resolution. I thought yesterday that it had been removed. I don't believe in endorsing unqualifiedly any administration till we know what it is. We do know that a majority of the directors of the New Haven Road are the same as they were and have been for years past. What we want them to do is to properly discharge their duties.

It doesn't seem to me that we should pass a resolution indorsing these same people.

Motion put by chairman and carried.

MR DUFFY: I want to introduce this resolution: Whereas, the present deplorable financial condition of the New Haven Railroad Company would have been easily prevented if the Public Utilities Commission of the New Eng-

land States had possessed the power of supervising the issuing of all public utilities securities in the past; therefore,

Be It Resolved; that we, the farmers of Connecticut hereby petition the government and legislature of this state to give to the Connecticut Public Utilities Commission, such supervision.

I don't think there is any opposition to this now, all opposition that I know of having been withdrawn, and I therefore move the adoption of this resolution.

Motion put by the chair and carried.

If there is nothing further, this meeting will adjourn.

MR. HEALEY: The committee which you appointed yesterday to hand in a list of the officers of the State Alfalfa Grower's Association hereby make their report and recommend the following list of officers: For President, Wilson H. Lee, Orange. For vice presidents,

Litchfield County; E. D. Curtis, New Milford, Fairfield County; J. Russell Hatch, Danbury, Middlesex County; Charles T. Davis, Middletown, Windham County; C. H. Child, Woodstock, Tolland County; C. H. Savage, Storrs, New London County; James B. Palmer, Norwich, Hartford County; Robert L. Sadd, Wapping, New Haven County, Thomas Holt, Southington.

Secretary, H. L. Garrigus, Storrs, Treasurer, H. O. Daniels, Middletown. The Auditor is to be appointed by the President. Executive Committee: Charles B. Sykes, Jr., Ellington, L. H. Healey, Woodstock and N. S. Stevens, East Canaan.

MR. HEALEY: I move that the report of the Committee be adopted.

Motion seconded.

Motion put by the chair and carried.

Meeting adjourned.

Afternoon Session.      Wednesday, December 17th, 1913.  
1.30 P. M.

Meeting called to order by Mr. J. Arthur Sherwood, of Easton.

THE CHAIRMAN: As the President and Secretary were engaged this afternoon for a short time, they asked me to open the meeting. I am sure we have all enjoyed the

sessions that have been held here. Addresses have been given by those who were capable of handling their subjects; and we have a treat in store this afternoon.

It gives me pleasure at this time to introduce Mr. David S. Kelsey, Secretary of the Vegetable Grower's Association.

MR. KELSEY: Mr. Chairman and Ladies and Gentlemen: I did not know that I was to be called, till a moment ago, yet I am glad, because I want to beg pardon of the people that are here—maybe you will see some of them before you die, and pass to them the regret of the Vegetable growing interests of the state and the young organization which I represent as secretary. I agreed with the Secretary of the Board, Mr. Healey, to send out a personal and direct notice regarding this afternoon session, and I did the work, and mailed those notices, including a full program of this week, with a full sheet printed letter, to a mailing list of about 675 people before last Friday night, and so far as I have heard from them, only one or two have received those; and that is what is the matter with those empty chairs. I hope that the right person may be brought to task by the post-office department of Hartford; but that is all I know. I did my part.

Those of you that happened here without knowing what the Vegetable Grower's Association is doing, may pardon me if I just denominate one or two points. You know that the cry to-day is co-operation, gentlemen. Some of you heard that call yesterday from this platform, and although I am not criticising the speaker upon this particular subject, if he has time, he will put in a paragraph about co-operation.

Now one of the last classes of farmers to organize seems to be the truck grower, from the man who from away back on the hills goes to market once or twice a week for his groceries, and puts in a couple of bags of potatoes or turnips, to the man who drives out of his yard at half-past three or four in the morning, every day except Sundays, with a load of forty kinds of produce. They all know the amount of work which is being organized in every state. For some years in Hartford we have had our market gardner's association, and for some years, I think, around the suburbs of New Haven they had a better association, and it has done them good. I speak of it for your interest and your membership and your co-operation in this newly organized State Vegetable Grower's Association, of which Mr. E. N. Farnam of New Haven is president, and we have a vice president for each county; and if you will get in touch with them, you will get notices of the meetings, and I think will

be ready to ultimately join and co-operate. It was through this interest that we have secured this afternoon, a speaker from a neighboring state that many of you have heard before; and I assure you that you will be repaid for listening to anything that he may have to say—a most successful man in this line. The Pomological society has made a wonderful record in this little eight county state on some fruit, with a state that had 84 counties, and I don't know that their association is any better than ours; but there is no reason why our Vegetable Grower's should not be just as strong, aggressive and successful. We hope to have an annual meeting by ourselves, if we can get a nice little membership together, but if not, in co-operation with the Pomological Society the first week in February; and I wish you would make certain of getting the announcement of that. I hope the Hartford post office will not be three weeks in getting out circulars that are properly addressed and stamped.

Now I am going to say, gentlemen, that there is nothing that there is such a crying need for among market gardeners to-day as price and maintenance; and I do not know where the market gardener can derive more benefit than from threshing out that one topic, price and maintenance.

THE CHAIRMAN: I am sure that we are all more or less interested in this subject of market gardening, and as has already been intimated, we have with us a speaker from a neighboring state, who is to bring you words along those lines; the subject is "Essentials of Success in Market Gardening." I have pleasure in presenting to you Hon. H. M. Howard, of West Newton, Massachusetts.

MR. H. M. HOWARD: I assure you that I consider it a very great honor to be invited to come here to speak to you. I am in the market garden business, and have been in it for the last twenty years, and I think I know something about the business, something about the essentials of success in the business, something about business in general. On my way up I jotted down in the little memorandum book that I always carry, some of the little farms that I know of, that are doing some of the business. There is one of an acre and a half, where the man does all of the work himself, with the assistance of two boys; last year that acre and a half made \$2500. in the market garden business. Another place of three and a half acres, where there is a acres, and from that two acres he sells \$500 worth of stuff. Another place of three and a half acres, where there was a



green house and some two hundred hot beds, the man told me he sold \$7,000 worth of produce. On another place, adjoining this, of 7 acres, where there are five green houses the man sold \$15,000 worth of produce. On a place not very far from there, 10 acres, with considerable glass, some 500 linear feet of green houses, sold \$18,000 worth of stuff. Another place right adjoining that, of 18 acres, sold \$18,000 worth of stuff; just consider the difference, 10 acres, \$18,000. Another place with just the same amount of glass but 18 acres of land, \$18,000. The average returns of market gardens throughout the United States were only about \$108 per acre, according to the census. Those fellows, you see, are making \$250 and over; that is, the gross receipts. At another place, where the man cultivates 100 acres of land, and on that place he has five green houses—he has a nice irrigation plant, and he sells over \$75,000 worth of stuff in a year. The place right across the street from him has only six acres and a half in it; it is four miles and a half from the market; that man has sold from his green houses and his six acres and a half of land \$35,000 within the last year. He had never been in the market garden business until his brother died and left the business and plant; he had been professor of modern languages in the high school; he saw that there was a pretty good chance for business right there on his brother's place, and he bought it. While the brother was only doing \$15,000 or \$20,000, this man has worked it up to \$35,000; which is a very good argument for education.

It is the man who knows what to plant, and when, how and where to plant it, also knowing how, when and where to cultivate, harvest and sell, and who keeps everlastingly at it, who succeeds. He is awake, and alert to every opportunity for business. He studies each and every essential factor of success. He has tact and develops tact. He studies to see how best to handle each one of his laborers. He knows that labor is the largest single item in his expenses. He studies human nature. He learns all he can about his horses—for they are very necessary in his business. He knows every horse he owns or hires, and knows just what work each horse is best suited for.

The market gardener studies to keep his equipment well balanced. He looks well after his tools, wagons, carts, lumber, glass, and each and every thing in the line of his business. He has, and must have, unbounded courage, push and good, strong principles to guide him. One or two crop failures or large losses in equipment, would paralyze a man with a faint heart.

Nothing stimulates to action like winning out. One

success helps to make another; and, conversely, one failure helps to make another. The market gardener studies every failure to see what caused it. He studies causes, and looks so closely after every detail, that only climatic or market conditions can prevent his making one great success.

The market gardener studies the cost of production very closely. He can tell within a few cents, the cost of a unit of any crop he has for sale.

The man who grows up in the business and knows the practical end, is usually most successful. Any other man who goes into the business, must be a good manager, and he will have to hire men who know how, and learn from them.

This man that I spoke of as taking his brother's place, knew nothing about the business, but he went in and took the place with the same men, and they taught the new proprietor how the thing was done, from the practical end, and the new proprietor has the business ability to run it. He was a good manager.

If in a neighborhood where several market gardeners live, he will need only to look over his neighbor's fence and follow his methods very closely, but he will still have to do his own accounting; for, in market gardening, as in many other lines of business, calculation is one half.

The following are the several headings under which I propose to discuss this subject: Market, Manure, Land, Labor, Seed, Water, Glass, Crops, Capital and Profits.

Market: A large market is to be desired. It will use an immense amount of stuff. When the supply is light, it is much easier to raise the price. When the supply is heavy, a drop in the price brings in a host of peddlers, and the glut is soon off. Within a few hours or days, the market recovers, and living prices are again obtained. A large market has more variations in price than a small one, and it takes a more alert salesman to sense the supply and demand. The good salesman has a correct idea of the quality of his goods as compared with others, and gets the market demand for that quality sized up quickly, and disposes of his loads to the best advantage. The salesman who can have a load in the market every day, is sure to strike the market right some of the time. A good salesman makes quick collections, keeps his customers good-natured, and gets all the money his goods will bring, and then turns it all into the treasury. I consider the salesman the next in importance to the employer himself.

A man near a large market can get labor easier than a man far away. The variety of crops need not be so large, and so, more attention can be given to those that are grown. The more perishable crops can be disposed of to best ad-

vantage. There is always an outlet in a large market for a fancy quality at fancy prices. There are hundreds of good, small markets in our manufacturing towns all over New England. All we need to do is to raise the goods that they want, and sell them at the right price; then success is ours. It often surprises me to see how much money people will pay for a head of lettuce, a bunch of celery, a cucumber, or a bunch of radishes. The small market requires a large variety of vegetables, and of an even, though not a fancy quality. A royal, good fellow on your wagon for a salesman, will go a long way toward helping you win out.

A good-looking market team gives the market man a lot of satisfaction, and helps make him a better salesman. You and he need to keep in close touch with one another, and study the demands of your market. It will do you good sometimes, to get on the wagon with your salesman, and call on every one of your customers. You will all be better acquainted, and friendship goes a long way when the market is hard. Most all of our markets pay every day. The market gardener is from thirty days to a year in producing a crop, and that is long enough to wait for his money. Sell for cash.

Manure: The best manure for use is the horse manure; that is what we use around Boston; it is the best manure we can get. We must have it for hot beds, for raising greenhouse lettuce and cucumbers. There is nothing better. It has a good mechanical effect on the soil. Some gardeners, who cultivate a clayey soil, find that by plowing in ten cords of strawey horse manure in the fall, and ten or more of the same in the spring, they produce a condition of the soil which is well suited to growing market crops. Nothing less than twenty cords of manure every year is enough for market gardens. On many places, where over a thousand dollars worth of vegetables per acre are sold every year, the application of manure will be thirty cords per acre, on the average. We plow in all manure and then replot once or twice, so as to mix the soil and manure. We have found manure about half and half, the best condition to apply it in. The spring of the year is the best time for many crops, viz; spinach, lettuce, radishes and beets. Cow manure is especially good for corn, spinach and beets. Too much well rotted horse manure is very liable to make lettuce burn in the head. Besides manure from horses and cows, that from pigs, hens or sheep can be profitably used. These are all particularly good for spinach and cucumbers. Many market gardeners use nitrate of soda or sulphate of ammonia, on early or late crops. But in midseason, the manure furnishes all the nitrogen the plants can use. These two chemicals

are applied to the surface, broadcast, or between the rows, when the plants are dry, or during a rain. About 200 pounds to the acre at one application should be the limit. Nitrate of soda is particularly good for rhubarb, lettuce and celery; sulphate of ammonia for beets and spinach and cauliflower.

In speaking about half-rotten manure the question might arise, how are you going to have it half rotten, when it has been kept for six months. We pile the manure in several piles, say along in November and during the winter; and in February and March we top up those piles with fresh manure, and mix it until it is about half rotten and half fresh. I prefer to pile the manure on top of the ground somewhere and work it over in the spring, the middle of February and March, and put it into the ground in March or April, when it will do such crops as spinach, lettuce, radishes and beets a lot more good than if put in in the fall. With some crops I don't think it would make any difference, such as onions or squash; whether it was put in in the spring or fall the year before; but for spinach, lettuce, radishes and beets I want to put it in in the spring, and then we are applying a large amount of available nitrates, and those crops want available nitrates early in the spring. I don't believe there is anything that will make spinach or beets grow faster or better than cow manure, unless it is horse manure and nitrate of soda.

**Land:** A sandy loam is the ideal soil. A southeasterly exposure is the ideal exposure; a gentle slope, preferable to a plain surface. The land which you have to use, may need draining. If it does, drain some, and learn by doing it. If the land you have is very light, it can be improved by plowing in bean vines, corn fodder and an excess of stable manure. Make a study of your land. Test it out and see what it is good for; then raise all you can sell. Land only four miles from market ought to be worth nearly twice as much money as the same kind of land ten miles from market. A small farm, well run, will pay much better than a large one.

**Labor:** This is the largest single item of expense in market gardening. On many of our farms this will run up very high per acre, \$300 to \$400. The labor we hire is that of horses, men, women and boys or girls. The four points we look for in labor are, 1st, ability, 2nd, capacity, 3rd, temperament, 4th, other good qualities, neatness, quiet and orderly habits and reliability.

The laborer is working for wages, and when they are due he wants them. I have seen some farmers troubled from loss of help, because they were not regular in paying their help. I like a labor supply where there are several nation-

alities and several ages, and several young fellows breaking in. The young fellows, from fifteen to sixteen years old, who break in with us, become our best help, and, for the amount of work they do, are usually the cheapest. We like to see at least one-half of the gang old hands, showing a record of from five to fifteen or more years of continuous service.

**Seed:** The best seed we can buy; the best seed we can beg; the best seed we can raise. These are what we want to help us make a great success. All seed should be tested for vitality and purity, and, so far as we can, we want it of a known strain. Good seed and used liberally, is necessary, if we are to get maximum crops. Study various strains of seed and try them out, then plant liberally of the best, and keep testing out more. The best strains of seed will enable us to harvest our crops over a short period of time; beets, cabbage, radishes, lettuce and cucumbers will give us a crop of great uniformity.

**Water** is the next essential to success: The rainfall in New England is never quite satisfactory through a season. There is seldom a year without a drought that pinches some market garden stuff. About 90% of all vegetables is water, and we find it extremely profitable to irrigate any time a crop needs it. The sprinkling method of applying the water seems the most popular, and is very satisfactory. Where there is a large amount of humus, a large amount of water is retained. Water makes the plants grow. I have doubled the size of celery, corn, tomatoes, peas and beans, by the judicious use of water, put on by the Skinner System. Crops of onions in this Connecticut valley have shown an increase of 500 bushels to the acre where water was used liberally. The water cost not over \$30 per acre, and the onions were worth \$500; a profit of \$470. Just get busy and test out the value of water rightly applied. Five dollars worth of water on an acre of potatoes on one farm in Massachusetts this year, increased the yield 42 bushels, which at 70 cents made \$29.40. The manager had 60 acres of potatoes, and the average yield was over 260 bushels per acre. He had one experimental acre planted 18 by 8 inches, and from that, harvested 560 bushels of potatoes. He intends to try several applications of water another season and run several experiments, to determine how much water the potato crop can profitably use.

You can get a crop up nicely by irrigating. You can hasten the growth and size by irrigating. You can improve the quality by irrigating. You can do more business, because one crop comes off earlier, and the ground is in good

condition to start another right away. There is a lot more satisfaction and profit when irrigation is well done. Irrigation will help you to be in the market all the time. The other fellow, who does not irrigate, will have to wait a long time for his crop to mature.

Night is a good time to water. You can cover an acre one inch deep for \$8., with water at 30 cents a thousand gallons.

Glass we find essential. Hot bed sash are used to get lettuce, beets, onions, celery, tomatoes, peppers and egg plants started earlier than we can in the open. Some farmers use only a few sash; others use several hundred. Keep them well puttied and painted. The big point is this; keep those sash well puttied up, well painted; keep them tight. Stuff will grow 25% better under a good sash than it will under a poor sash. Wash the glass. Greenhouses are still increasing, and seem to be more profitable than out door farming. They give us a chance to keep our help better employed in rainy and very cold weather—withal, they are essential on an up-to-date place.

Crops: In the great variety of crops grown on a market garden, there are some that grow well, and always some that do not grow well. There are always several that sell well. These are not the same every season. Over a period of several seasons, however, it is possible to pick out the good sellers, the popular varieties, the ones that sell, if anything sells. These are the money makers. Lettuce, spinach, radishes, celery, onions, corn, beans and tomatoes are good sellers and are very popular with a great many people in all markets. Plant liberally of these good sellers. As I said before, they are the money makers.

MR. STANLEY: What kind of beans?

MR. HOWARD: String beans; they are the most profitable variety to raise. You fellows down here in Hartford send hundreds of bushels of lima beans down to Boston to sell, and we market gardeners around there buy them and take them home to eat. We raise string beans and sell them in Boston. I don't know where they go to.

MR. STANLEY: You say they ship them from Hartford?

MR. HOWARD: They are shipped from Hartford, yes sir. They have put us out of the business of raising lima beans. We can't compete with them at all. I have seen any quantity of lima beans from Hartford. Very often we buy them and take them home as we want them.

The next subject is that of Capital. This includes stock, tools, manure, seed etc., as well as money to do business

with. There are times when little is coming in and much going out. There are opportunities to make money in buying seed, hay, grain, manure and many other things, if they are bought for cash. If you wait to have all the capital you want, you will get past wanting it before you have it saved. If you have an idea that you want to accomplish something, and have a clear idea of the way to do it, and lack capital, borrow it, and borrow enough to do what you want to do, and make a profit and pay back what you borrowed, and enjoy doing your business. The speaker attributes his first success largely to his courage, and the confidence of his friends, who were willing to lend him money. And never, since the first success, has he hesitated to borrow money when needed.

You doubtless heard a lot about co-operative finance yesterday, and you may have had a vision of easy money. You may as well awake from your pipe dream, and realize that you will have to give value received for every dollar you receive from any source; and you will have to pay for the use of those dollars. You want to figure your business so as to be able to discharge your notes when due. If you need money in your business, go to the bank where you deposit, and have a talk with the president; tell him what you want it for, and, if you and your reason suit him, you will be able to get all you need. You want to get the habit of reading the financial page in your daily paper, and meditate on it. Read all the labor news you can, and meditate on it. After reading both these sets of news, your mind will resolve to make more of a man of you. You will return to your business more determined than ever to make a great success, and you will do it. Courage is the prime factor. You have heard it said that it takes money to make money; but I want to tell you, that courage and credit will make money.

Profits: Ah, yes, these are what we are looking for and what we expect to obtain from market gardening. They come only to those who do the right thing at the right time. In good years, when everyone has boosted prices and we do not have too large crops to harvest, the profits run a large per cent. of the business done. If you are one of the best class of farmers and have large crops, in years of boosted prices you will get a new love for the business. There do come periods of low prices, poor quality of goods, or immense quantities of good goods, or blights or insects, or one or several calamities, when we market gardeners lose a large part of our courage. Everything seems to be going the wrong way. Prices are bad, the market is poor, our bank accounts are diminishing and we wonder how long the conditions

can last. We are losing money every day, and no one knows how long it will last. We call on our neighbors; they feel the same as, or worse than we do. Then the Market Gardner's Association has a big meeting, to see if something toward co-operative marketing can be started; committees are appointed, meetings are held, schemes are advanced, and some theories exploded. We all have the same notion; we are selling our goods below cost; we are losing money; the market is poor, and we have been making it worse. Now the tide is run, and now it turns. All circumstances seem to make for prosperity; we forget our theories; we are busy reaping our reward; we had courage; we held on, and when the upward swing came, we were ready. Have courage, then, and persevere, and figure all the while.

If there are any questions with regard to any special matter, I would be pleased to give you any information that I can.

Q. What do you pay for horse manure?

A. We aim to buy it for a dollar a cord; of course we would pay more, \$2.50 perhaps, or \$3.50 perhaps. We don't intend to.

MR. STANLEY: You said you bought lima beans up there on the street, so you don't consider lima beans worth raising?

MR. HOWARD: Oh, we can buy lima beans for a dollar a bushel up there, pretty nice lima beans. We can get—very seldom less than a dollar and a quarter for our string beans; we can raise string beans in 37 days, and we can pick a bushel of string beans in about half the time that we could pick a bushel of lima beans.

MR. STANLEY: You spoke about fertilizer for rhubarb, nitrate of soda; isn't that inclined to make too rank growth?

MR. HOWARD: I don't think it is; no. We put on two applications of nitrate of soda, one very early and one a little later. Here is the point in rhubarb growing; you can go into the field at this time of the year and throw manure on every crown of rhubarb you have got in the field; the manure keeps the ground from freezing; and then along in March, by the 20th, take that manure from the top and put it on the soil; take it off the crowns, and they will come up sure, and you will be harvesting rhubarb by the middle or 25th of April, right out of the field instead of waiting nearly till May. I sold rhubarb this last year for ten cents a pound out of the field. It is a great deal better to sell out of the field



for ten cents than out of the green house for ten cents; there is more profit. Rhubarb is a very good crop to grow.

Q. I think you left out of your paying crops, cabbage and potatoes.

A. I have never been able to grow those that pay; that is the reason I had to leave them out. I can speak only from experience or observation. I never could raise potatoes to make it go, and never tried to. There are too many other things that pay pretty well. Potatoes are a heavy crop. I figure that I want to raise as few pounds as I can for the most dollars. For instance, lettuce doesn't weigh very much; there are only about 9 pounds of lettuce in a box; you get 75 cents for 9 pounds. That is better than raising milk isn't it?

Q. How many acres do you cultivate?

A. At present I cultivate about 10. When I started in business I started with 22 acres; from 22 we jumped to 50, and from 50 we jumped back to 17, and from 17 went up to 60; I was farming 60 acres that year for a man, and then when I started in for myself I had set 900 feet of sash and 10 acres of land, and I thought that was a pretty good proposition; from that 10 acres of land the first year I sold something like \$4,700 worth of stuff, and the last two years I have sold over \$17,000 worth of stuff, with the same amount of land; and that isn't the limit; it will go even better than that.

Q. Speaking about rhubarb, do you cultivate between the rows?

A. No, we don't cultivate at all. Last year while I was taking a week's vacation they got enough manure in the crowns to last for a year; we plowed the roots up and are going to force them under glass and set them out next spring. We grow them one year and then plow them up again; that is our rotation.

Q. How do you set your rhubarb?

A. Set rhubarb two feet apart in the row and rows four feet apart; by setting some every year you see we get a stalk that is about two inches to two and half; sometimes a little more than that, wide.

Q. At the root?

A. Yes; when you get large stalked plants about two feet long, you can ask a man half a cent a pound more, and he will pay it.

Q. You commence pulling it up when it has got about seven or eight inches high?

A. Oh yes, sure; we sell rhubarb as long as they will pay two cents a pound; when they don't pay that they don't get any. That makes a pretty good proposition to us, \$40. a ton.

Q. How many years do you run it?

A. We just crop it one year; what we put out this spring we will pull a little in July; what we set out in April that we forced, we will pull a little in July; and next year you see we will get a very good crop.

Q. From what you set this spring, next year you cut your crop? A. Yes; what we set in 1913 we pull next spring, we pulled a little in July 1913, and in April 1914 we will pull it very heavy; that is a big month for rhubarb; next October or November we will plow it out and force it; in that way we get small roots.

Q. Do you keep using the same roots all the time?

A. Keep using the same roots all the time; split them up; they keep increasing, if you give them plenty of water and manure, about three inches of manure and ten inches of extra water.

Q. After you force them for winter growth you divide the roots and set them over?

A. I take those roots right down into the lowland and split them and set them out, and give them plenty of water. Water is a great thing.

Q. What is the character of that low ground?

A. It is rather heavy soil, most of it; there is about an acre and a half or two acres and a half that is rather mucky; the rest of it is rather heavy land.

Q. How much lift do you make of your water?

A. Not over three and a half feet; you can lift 48,000 gallons of water a foot high for about a cent a gallon; I don't run it on, however right between the rows; I pump the water over them with what they call an impelling pump. The cost of installing those impelling pumps is about \$1200 for sixty acres; and you can figure that out.

THE CHAIRMAN: Are there any more questions you would like to ask Mr. Howard? If not, that closes the program as arranged by the Board.

I am sure we have all been very much interested in the remarks that have been made here this afternoon, also during the entire session. The question that now remains with us is, how much good are we to receive from the suggestions that we have received here from these various speakers, who are experts along their several lines, to take home and put into practical operation.

Now I desire to thank you, in behalf of the Board, for your attendance and the attention that you have given. The meeting is adjourned.

## OFFICIAL LIST OF SOCIETIES HOLDING FAIRS IN 1913.

NAME OF SOCIETY	PRESIDENT	SECRETARY	TREASURER
Berlin.....	Charles M. Jarvis.....	Leland Gwatkin.....	Bryant H. Atwater.....
Beacon Valley.....	Edw. P. O'Brien.....	Edw. J. Abern.....	W. T. Davis.....
Cornwall.....	R. K. Southwick.....	Wm. B. Hubbard.....	Andrew M. Clark.....
Conn. Fair Association.....	John L. Dower.....	O. A. Jones.....	W. H. Gecher.....
Conn. Diarvmen's Association.....	F. E. Duff.....	J. G. Schwink, Jr.....	R. E. Buell.....
Conn. Pomological Society.....	J. Norris Barnes.....	H. C. C. Miles.....	Allen B. Cook.....
Conn. B. & Keeper's Association.....	Elizjah Vanderwerken.....	L. Wayne Adams.....	Theodore Foster.....
Chester.....	Robert W. Abbey.....	Clarence F. Spencer.....	Belle L. Strong.....
Colchester.....	F. H. Browning.....	C. E. Staples.....	Wm. F. Palmer.....
East Haddam.....	G. H. Gelson.....	Geo. M. Smith.....	Stanley W. Edwards.....
Granby.....	Geo. O. Beach.....	Chas. Althouse.....	Wm. C. White.....
Goheen.....	Edwin O. Wright.....	Edward H. Johnson.....	W. B. Lonnberg.....
Guilford.....	Frank B. Bishop.....	Robert DeF. Bri-tol.....	A. J. Sweet.....
Horseshoe Park.....	A. C. Williams.....	Samuel B. Harvey.....	Frank W. Brewster.....
Haddam Neck.....	Robert S. Bailey.....	Geo. E. Wilkes.....	Edmund Brown.....
Harwinton.....	Frank A. Cleveland.....	Daniel K. Bentley.....	C. P. Kendall.....
Lyme Grange.....	Ray L. Harding.....	J. W. Stark.....	Bella M. Alling.....
New Haven Unity Hort. Society.....	Howard P. Brooks.....	David Wylie.....	Wm. H. Yost.....
New London County.....	Arthur D. Lathrop.....	Chas. D. Greenman.....	Geo. Slawick.....
Norfolk.....	Mrs. Fred'k O. Dennier.....	Jerome Alexandre.....	J. O. Haskins.....
North Stonington.....	Geo. D. Coats.....	Geo. H. Stone.....	Chas. A. Thompson.....
Orange.....	Robert J. Woodruff.....	Irving A. Andrew.....	F. W. Moore.....
Rockville Fair Association.....	Oscar A. Leonard.....	Parley B. Leonard.....	William R. Thustan.....
Stafford Springs.....	W. H. Hall.....	Chas. F. Beckwith.....	M. Riddick.....
Suffield.....	S. W. Graham.....	C. D. Towne.....	E. M. Upson.....
The Salisbury Association.....	Robert Scoville.....	Malcoln D. Rudd.....	S. L. Hollister.....
Union.....	H. O. Allen.....	James F. Miskill.....	
Union Society of Barkhamsted Colebrook and Hartland.....	T. C. Barnes.....	H. P. Deming.....	
Windham County.....	Preston B. Sibley.....	Joseph B. Stetson.....	
Woodstock.....	H. O. Preston.....	L. H. Healey.....	
Wolcott.....	W. A. Faber.....	W. V. Warner.....	
Washington.....	D. S. Hartwell.....	C. E. Hough.....	

# RETURNS OF AGRICULTURAL SOCIETIES 1913, FINANCES.

NAMES OF SOCIETY	CASH ON HAND	FINE ADMISSION TICKETS	MEMBERSHIP OR PLANT TICKETS	GRAND STAND	ENTRANCE FEES TRIALS OR SPEED	OTHER ENTRANCE FEES	RENT OF GROUNDS	OTHER SOURCES	STATE APPROPRIATIONS	DONATIONS AND UNCLAIMED PREMIUMS	TOTAL
Berlin.....	\$ 293.18	\$ 9,497.50	\$ 87.00	\$ 675.75	\$ 732.50	\$ 232.65	\$ 2,156.06	\$ 1,146.69	\$ 4,500.00	\$ 639.85	\$ 19,959.18
Beacon Valley.....	701.61	1,019.84	13.00	86.10	154.00	14.75	163.00	87.70	100.00	15.00	2,291.08
Cornwall.....	918.26	33,231.33	10.50	8,313.95	10,735.15	937.25	15,389.67	4,137.37	570.00	8,401.00	58,575.84
Conn. Fair Association.....	6 2 77	.....	238.00	.....	.....	.....	54.66	297.18	554.67	802.00	2,197.24
Conn. Dairyman's Association.....	108.00	.....	.....	.....	.....	.....	.....	382.65	452.50	.....	918.53
Conn. Pomological Society.....	9.54	.....	.....	.....	.....	.....	.....	270.00	270.00	.....	481.75
Conn. Bee Keeper's Association.....	.....	.....	.....	.....	.....	.....	.....	139.54	100.00	4.71	461.09
Chester.....	.....	154.06	25.75	.....	.....	.....	87.00	127.63	103.52	.....	814.45
Culchester.....	.....	74.37	.....	.....	.....	.....	.....	841.34	100.00	57.15	804.83
East Haddam.....	.....	255.97	.....	.....	.....	.....	.....	252.52	100.00	.....	1,076.49
Granby.....	57.05	892.92	.....	.....	.....	.....	154.00	96.50	100.00	.....	1,389.59
Guilford.....	23 91	796.18	72.15	.....	40.00	.....	175.50	118.23	270.00	87.00	1,245.29
Guilford.....	299.89	876.10	137.00	.....	.....	.....	482.00	1,518.25	500.00	.....	7,004.62
Horsehoe Park.....	.....	2,614.80	.....	383.00	1,270.75	193.80	273.97	274.53	100.00	384.25	7,083.90
Huddam Neck.....	52.18	323.86	.....	.....	.....	.....	.....	212.58	100.00	.....	698.65
Harwinton.....	.....	.....	25	.....	.....	.....	57.50	74.74	100.00	.....	876.48
Lyme Grange.....	111.01	395.40	.....	.....	.....	.....	.....	211.73	500.00	100.00	761.69
New Haven County Hort. Society.....	32.16	151.75	56.00	968.25	496.25	12.75	1,477.74	74.74	500.00	.....	2,870.079
New London County.....	132.03	8,339.23	255.00	.....	.....	70.00	28.80	1,047.70	500.00	285.18	1,225.851
Norfolk.....	102.12	1,385.25	168.00	.....	.....	.....	180.00	115.00	500.00	.....	3,184.611
North Stoughton.....	67.76	1,270.10	.....	.....	.....	.....	5.00	73.50	500.00	.....	3,184.611
Orange.....	47.5	2,850.00	124.00	1,047.25	725.00	19.00	1,479.50	73.50	500.00	.....	10,486.63
Rockville Fair Association.....	1,976.73	4,238.75	255.00	1,047.25	725.00	102.85	1,479.50	73.50	500.00	.....	10,486.63
Stafford Springs.....	671.11	5,418.95	584.00	1,047.25	725.00	19.00	1,479.50	73.50	500.00	.....	10,486.63
Suffield.....	332.24	2,727.00	.....	231.00	1,316.00	.....	989.75	1,657.86	200.00	.....	10,622.16
The Salisbury Association.....	.....	880.27	.....	.....	.....	65.65	59.00	859.86	100.00	482.61	1,946.82
Union.....	632.00	.....	10.00	.....	.....	.....	100.00	91.19	100.00	.....	1,908.19
Union Society of Barkhamsted.....	42.03	550.25	54.70	253.50	127.50	.....	179.37	100.00	189.40	.....	1,124.75
Chebrook and Hartland.....	227.12	1,612.86	65.00	253.50	127.50	99.01	883.86	61.88	500.00	49.00	3,859.73
Windham County.....	96.73	1,715.80	.....	277.75	102.00	91.55	927.34	927.34	50.00	.....	4,066.67
Woodstock.....	1,082.97	498.97	77.00	.....	.....	12.00	139.95	159.20	100.00	.....	2,143.12
Wolcott.....	311.38	421.80	15.00	12.01	.....	.....	231.00	86.92	100.00	187.50	1,223.70
Washington.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

## RETURNS OF AGRICULTURAL SOCIETIES, 1913, FINANCES, (Continued)

Name of Society	Expenses of Fair	Premiums for Speed	Premiums for Amusements	Other Premiums	Permanents	Improvements	Other Expenses	Cash on Hand	Indebtedness of Society	Real Estate	Personal Property	No. of Members	No. of Stockholders	Capital Stock	Admission Tickets	Season Tickets	Grand Stand
Berlin	\$ 7,071.06	\$2,930.00	\$ 1,367.80	\$4,693.65	\$1,179.44	\$2,300.00	\$374.23	\$18,140.00	\$25,000.00						\$ 50	\$1.50	\$ .50
Beacon Valley	362.30	440.00	80.00	342.70	126.11	393.65	641.27	541.27									
Cornwall	21.61		8.00	123.25		20.00	15.75										
Conn. Fair Ass'n.	25,877.06	17,127.00	4,688.40	8,121.25	20,357.03	5,622.17	1,080.93	11,312.48	199,444.91		7,534.86	108	60	250,000.00	50.25		
Conn. Dairyman's Ass'n.	654.21	627.96			737.65		70.46					975					
Conn. Pom. Society	143.70			774.86													
Conn. Beekeepers Ass'n.	12.20			570.00													
Chester	149.70			274.20	27.53		89.41	286.50				125					
Colchester	106.61			107.06			76.51				125.00	103					
East Haddam	353.61		12.00	107.06			100.79	400.00	3,000.00		150.00	173					
Granby	552.24	315.00	25.00	221.91	30.00		253.35					240					
Groton		129.54	272.00	337.06			250.40	800.00	2,000.00		50.00	29	50	2,000.00			
Gulford				337.06	125.00		493.14					275					
Horseshoe Park	1,217.96	2,005.00	863.97	1,342.50			63.74										
Haddam Neck	843.94		41.00	1,632.88	500.00		763.61	1,935.00		2,800.00	75.00	49	30	2,025.00	25.50		50
Harwinton	183.2		75.0	214.75			33.20	805.00		1,000.00	140.00	163		1,850.00	25.15		24
Lyons Grange	63.77		35.00	232.75	205.53		40.00	525.00		1,788.97		96					
New Haven Co.				175.75			113.36										
New Hartford Society	293.78			153.00			249.26	59.00				56					
New London Co.	2,161.46	1,900.00	1,625.50	1,263.15	1,425.13		831.63		10,000.00			173					25
Norfolk	1,500.00			671.51	113.00		632.23				400.00	173					
North Stonington	1,167.07			1,078.99	77.03		294.35										
Orange	2,300.00			1,435.35			294.35										
Rowville F.F.A.'s	1,177.50	1,014.45	1,405.11	1,231.35	654.67		1,361.50	1,000.00	1,027.00			74	161	4,000.00	35.50	1.00	25
Rowford Springs	2,976.00	2,227.00	1,974.27	1,074.65	1,000.00		1,819.50		10,000.00								15
Suffield		3,150.00	663.45	840.00			1,061.71		9,000.00				392	3,210.00	15.50		25.50
Suffield			53.00	840.00			35.81				100.00	477					
Suttonbury Ass'n.	1,437.70		53.00	923.45			547.29										
Union Soc. of B.	111.00			191.95													
Union Soc. of B. and H. and	270.27		25.00	678.45			14.08	100.00				109					
Windham County	455.02	394.25	95.00	933.45	436.29		824.01		25,000.00		270.00						25
Woodstock		383.70	843.20	663.05	717.60		173.74		7,000.00		1,734.00	522					25
Worcester			380.79	463.75	1,530.00		88.93		6,000.00		100.00	100					
Washington	569.21		9.00	501.70	100.00		23.79				100.00	87					

## NUMBER OF ANIMALS EXHIBITED, 1913

Name of Society	Bulls	Milch Cows	Heifers and Calves	Working Oxen	Steers	Rat Cattle	Horses	Horses (Special)	Sheep	Swine	Poultry	All Other Stock
Berlin	23	50	6	63	22	9	85	10	85	19	940	14
Beacon Valley	12	24	16	86	17	20	21	11	13	8	838	90
Cornwall	6	17	18	4	17	20	11	77	77	3	81	2
Conn. Fair Association	78	81	72	4	17	20	11	77	77	3	81	2
Conn. Dairymen's Association	...	...	...	...	...	...	...	...	...	...	...	...
Conn. Pomological Society	...	...	...	...	...	...	...	...	...	...	...	...
Conn. Bee Keeper's Association	...	...	...	...	...	...	...	...	...	...	...	...
Chester	...	...	...	...	...	...	...	...	...	...	...	...
Colchester	2	3	4	5	7 dr.	7 dr.	8	9	80	4	80	10
East Haddam	7	12	2	118 dr.	8 dr.	20 dr.	10	26	7	1	16 c ps	66
Granby	3	39	37	8 dr.	8 dr.	20 dr.	26	23	4	10	15 c ps	10
Goshen	16	23	21	39	18	...	45	45	11	18	106	66
Guilford	6	13	14	43	10	2	45	45	90	42	91	5
Horseshoe Park	23	39	88	41	22	...	80	88	5	...	699	15
Haddam Neck	5	24	23	86	15	...	16	16	2	...	15 c ps	15
Harwinton	3	8	2	14	27	...	19	19	2	...	20	15
Lyme Grange	2	...	5	20	76	...	...	...	...	...	...	...
New Haven County Hort. Society	41	86	76	25	12	6	16	12	79	23	21	...
New London County	...	...	...	...	...	...	...	...	...	...	...	...
Norfolk	8	54	49	7 dr.	12 dr.	...	84	13	7	11	20 c ps	66
Orange	10	38	19	10	86	10	13	6	6	10	146	...
Rockville Fair Association	38	48	72	76	14	7	27	9	9	...	714	...
Stafford Springs	19	45	52	41	9	10	23	15	15	...	...	...
Stafford	25	40	65	41	...	...	...	...	...	...	...	...
Stafford	3	44	44	2	1	...	101	23	23	12	8.3 c ps	11 bd
The Salisbury Association	10	10	23	3	1	...	9	...	...	11	54	4
Union	...	...	...	...	...	...	...	...	...	...	...	...
Union Society of Barkhamsted	13	17	35	9	9	...	81	...	20	5	120	10
Colebrook and Hartland	24	42	88	22	24	...	45	...	6	1	94	...
Windham County	14	64	76	37	10	...	...	...	41	14	232	...
Woodstock	6	19	21	24	4	...	...	...	7	2	...	...
Wolcott	18	39	89	8	21	...	44	...	11	6	45 c ps	24
Washington	...	...	...	...	...	...	...	...	...	...	...	...

## AGRICULTURAL FAIRS IN CONNECTICUT, 1913

Name of Society	Place	Date	Attendance						
			Monday	Tuesday	Wed.	Thurs.	Friday	Saturday	Total
Berlin	Berlin	Sept. 21, 23, 24, 27							
Beacon Valley	Beacon Valley	Oct. 14		2,500	7,000	10,000	8,000	2,500	25,000
Cornwall	Cornwall	Oct. 2							8,000
Conn. Fair Association	Charter Oak Park	Jan. 1-6	50,000	10,000	8,000	12,000	5,000	10,000	880
Conn. Dairyman's Association	Hartford	Jan. 21-23							95,000
Conn. Pomological Society	Berlin	Sept. 21-27							8,000
Conn. Bee Keeper's Association	Charter Oak Park	Sept. 1-6							
Chester	Chester	Sept. 23							
Colchester	Colchester	Sept. 25							
East Haddam	East Haddam	Sept. 10							750
Granby	Granby	Sept. 24-25							400
Gothen	Gothen	Sept. 1-2			1,000	2,500			1,500
Gulford	Gulford	Sept. 24	2,761	1,219					2,930
Horseshoe Park	Williamantic	Sept. 21							6,000
Haddam Neck	Haddam Neck	Sept. 1							1,700
Hartwinton	Hartwinton	Oct. 9							6,000
Lyme-Grange	Lyme-Grange	Sept. 17							1,850
New Haven County Hort. Society	New Haven	Sept. 17-18			387	883			1,270
New London County	No. wich	Sept. 1-3	12,000	7,000	3,000				22,000
Norfolk	Norfolk	Sept. 19-20					600	1,000	1,600
North Stoughton	North Stoughton	Sept. 9-11		1,500	3,000	2,007			6,500
Orange	Orange	Sept. 2-6		2,700	3,070	8,000	2,800	2,500	14,000
Rockville Fair Association	Rockville	Sept. 16-18		776	8,564				9,340
Stafford Springs	Stafford Springs	Oct. 13-15		7,000	2,500				14,500
Suffield	Suffield	Sept. 30, Oct. 7-4	5,000	2,500			8,800	1,700	8,000
The Salisbury Association	Salisbury	Sept. 1							5,000
Union	Broad Brook								
Union Society of Barkhamsted	Riverton	Oct. 11							2,800
Colebrook and Hartland	Brooklyn	Sept. 23-25			2,500	2,000			4,500
Windham County	South Woodstock	Sept. 15-17							5,000
Woodstock	Wolcott	Oct. 15							2,500
Washington	Washington	Sept. 5							2,000



## Report of the Treasurer.

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CHAS. A. THOMPSON in account with

STATE BOARD OF AGRICULTURE.

	1912	Dr.	Cr.
July 1.	Balance amount in treasury	\$478.89	
" 10	R. E. Dodge,		\$16.01
" 26	R. R. Evans,		4.50
" 30	Railroad fares of delegates,		60.35
Oct. 15	G. Warren Davis,		7.39
" "	E. D. Howe,		17.40
" "	L. H. Healey,		52.64
" 23	The Evans Brothers,		76.35
Dec. 18	J. Cunningham & Son,		5.00
" "	D. W. Patten,		21.35
" "	J. Johnson & Sons,		50.00
" "	Yale D. Bishop,		115.50
" "	Champion & Co.,		6.00
" "	Evans Bros.,		48.75
" "	Frank Gerrett,		23.00
" 26	Bee Publishing Co.,		5.00
" "	The Times Co.,		12.00
" "	F. W. Ethridge,		8.00
" "	Milford Citizen,		1.20
" "	The Advertiser,		4.80
" "	Bristol Press Pub. Co.,		6.30
" "	News and Times,		6.00
" "	Chas. F. Roberts,		4.85
" "	By State Appropriation,	500.00	
" "	Ewart G. Healey,		14.42
" "	Leslie Geer,		12.02
" 27	John Toth,		12.02
" "	Geo. W. Mellor,		5.00
" "	Herbert Plumb,		3.00
" 31	Andrew Schwab,		12.77

"	"	Harold Ramsey,	2.00	
"	"	Frank E. Blakeman,	5.00	
"	"	Frank D. Ramsdell,	8.00	
"	"	Andrew Schwab,	5.50	
"	"	Harry Schwab,	2.00	
"	"	H. L. Hamilton,	5.00	
"	"	C. E. Hull,	2.00	
"	"	Walter L. Yale,	2.50	
Jan.	1	L. H. Healey,	2.00	
"	"	Walter L. Yale,	10.00	
"	"	Phelps Montgomery,	10.00	
"	"	Andrew Schwab,	6.00	
"	"	Henry Schwab,	7.00	
"	"	E. R. Rollins,	2.00	
"	"	L. H. Healey,	600.71	
"	"	R. E. Dodge,	14.44	
"	8	By State Appropriation,	1,000.00	
"	"	F. C. Minkler,	25.75	
"	"	Conn. Farmer Co.,	23.52	
"	"	J. A. Sherwood,	26.90	
"	"	J. B. Palmer,	41.70	
"	"	Edgar A. Wilcox,	5.00	
"	"	Fred F. Meeker,	3.00	
"	"	D. J. Ellsworth,	3.00	
"	"	J. A. Sherwood,	7.40	
"	"	Y. Spivakowski,	30.00	
"	"	S. P. Hollister,	8.35	
"	"	State Appropriation,	500.00	
"	10	Price Lee and Adkins,	5.75	
"	"	J. C. Graham,	15.07	
"	"	W. L. Davis,	20.80	
"	"	H. O. Daniels,	11.20	
"	"	Journal-Courier,	6.00	
"	"	C. C. Hulsart,	15.15	
"	11	Geo. A. Cosgrove,	19.82	
"	"	C. A. Thompson,	38.25	
"	"	Chas. M. Gardner,	13.35	
"	"	H. J. Bower,	5.50	
"	"	Shore Line Times,	6.00	

" "	Chas. F. Roberts,	80.00
Feb. 19	H. C. C. Miles,	175.00
Mar. 13	L. H. Healey,	55.44
" "	Poplar Hill Farm,	5.00
" 14	The Evans Bros.,	10.15
" 17	W. C. Sharpe,	4.80
" 24	The Evans Bros.,	46.05
Apr. 19	To Pres. and Sec'y. of Fairs for R. R. fares,	38.75
" "	The Garde,	18.30
" "	P. B. Sibley,	2.60
" "	J. B. Palmer,	30.52
May 2	L. H. Healey,	34.30
" "	The Evans Bros.,	34.50
" "	John Hamilton,	5.00
June 19	By State Appropriation,	1500.00
" 24	N. H. Brewer,	6.20
" "	E. E. Brown,	32.30
" "	Geo. A. Cosgrove,	9.76
" "	C. A. Thompson,	56.19
" "	R. E. Dodge,	9.42
" "	L. H. Healey,	59.69
" "	J. B. Palmer,	9.55
" "	D. W. Patten,	19.05
" "	L. H. Healey,	520.00
" "	Balance amount in treasury,	1,089.04
		<hr/>
		\$3,978.89 \$3,978.89

We have this day examined the accounts of Charles A. Thompson, treasurer, and find the same correct.

D. W. Patten,  
J. B. Palmer,  
Richard E. Dodge,  
Auditors.

Hartford, Conn., June 24, 1913.



## Connecticut Dairymen's Association.

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List of Officers for Year Ending  
February 15, 1914.

President,	F. E. DUFFY, West Hartford
Vice-President,	H. W. ANDREWS, Brookfield Center
Treasurer,	R. E. BUELL, Wallingford
Secretary,	J. G. SCHWINK, Meriden

**Directors:**

R. J. AVERILL,	Washington Depot.
H. L. GARRIGUS,	Storrs.
E. A. JONES,	New Canaan.
H. O. DANIELS,	Middletown.
C. B. POMEROY,	Willimantic.
ADOLPH GREENBACKER,	Meriden.
THOMAS HOLT,	Southington.
E. J. HEMPSTEAD, Jr.,	New London.
WILSON H. LEE,	New Haven.

## Connecticut Dairymen's Association.

### Financial Statement.

A financial statement of the Connecticut Dairymen's Association for the year ending December 1st, 1913, made to L. H. Healey, Secretary of the State Board of Agriculture.

#### RECEIPTS.

Cash on hand,	\$ 642.77
Memberships,	236.00
Donations from members for premiums,	302.00
Rent of space in the hall,	54.66
Adds. on the programs,	15.00
Milk Record sheets sold,	57.28
For butter sold,	24.90
State appropriation,	554.67
	<hr/>
	\$ 2,087.28

#### EXPENDITURES.

Speakers and hotel bills for annual meeting,	\$ 654.21
Premiums paid for milk, cream and butter,	627.96
Institutes expenses,	195.28
Printing programs and annual reports,	292.93
Secretary's salary,	200.00
Miscellaneous supplies,	46.44
Cash on hand, Dec. 1st, 1913,	70.46
	<hr/>
	\$ 2,087.28

Attest:

J. G. Schwink, Jr., Secretary

R. E. Buell, Treasurer

## **The Connecticut Pomological Society.**

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**List of Officers for the Year Ending,  
February, 1, 1915.**

<b>President,</b>	<b>STANCLIFFE HALE, So. Glastonbury.</b>
<b>Vice-President,</b>	<b>GEO. W. STAPLES, Hartford.</b>
<b>Secretary,</b>	<b>H. C. C. MILES, Milford.</b>
<b>Treasurer,</b>	<b>J. H. PUTNAM, Litchfield.</b>

### **County Vice-Presidents:**

<b>Hartford,</b>	<b>L. C. ROOT, Farmington</b>
<b>New Haven,</b>	<b>A. T. HENRY, Wallingford</b>
<b>Fairfield,</b>	<b>G. A. DREW, Greenwich.</b>
<b>Litchfield,</b>	<b>E. D. CURTIS, Bantam.</b>
<b>New London,</b>	<b>F. W. BROWNING, Norwich.</b>
<b>Middlesex,</b>	<b>HENRY H. LYMAN, Middlefield.</b>
<b>Windham,</b>	<b>E. E. BROWN, Pomfret Center.</b>
<b>Tolland,</b>	<b>C. H. SAVAGE, Storrs.</b>

## The Connecticut Pomological Society.

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### Financial Statement.

A financial statement of the Connecticut Pomological Society, from February 1, 1913 to February 1, 1914, made to L. H. Healey, Secretary of the State Board of Agriculture.

#### RECEIPTS.

Balance on hand,	\$ 26.82
Received from annual memberships,	828.00
Received from Rentals, Exhibitions space,	183.90
Received from Sales Exhibition fruit,	285.80
Received from State Fair Exhibition,	100.00
Received from Agricultural Fair fund (1912-1913)	600.00
Received from State Appropriation,	1,457.16
Received from Other Sources,	5.50
	<hr/>
	\$ 3,487.18

#### EXPENDITURES.

Expenses annual meeting,	\$ 998.83
Premiums paid,	168.75
Publishing Annual Report,	521.44
Expenses annual exhibition,	147.04
Premiums paid,	606.10
Field meetings,	19.15
Institute work,	75.00
Secretary's office, salary and expenses,	393.95
President's office,	20.50
Treasurer's office,	44.21
Miscellaneous, Printing and postage,	150.29
Sundry expenses,	54.69
	<hr/>
	\$ 3,199.95
Balance, Cash on Hand, Feb. 1, 1914,	287.23
	<hr/>
	\$ 3,487.18

Attest:

H. C. C. Miles, Secretary

J. H. Putnam, Treasurer



## Connecticut Poultry Association.

List of Officers for the Year Ending,  
December, 31, 1914.

<b>President,</b>	A. B. BRUNDAGE, Danbury.
<b>Secretary,</b>	GEO. V. SMITH, W. Willington
<b>Treasurer,</b>	C. H. BRUNDAGE, Danbury.
<b>Attorney,</b>	C. F. ROBERTS, New Haven.

### County Vice-Presidents:

Litchfield,	H. J. NEWBURY, Torrington.
Fairfield,	F. C. CRANE, Bridgeport.
New Haven,	F. M. PEASLEY, Cheshire.
Hartford,	P. R. DAY, West Hartford.
Middlesex,	J. L. PAYNE, Portland.
Tolland,	E. S. EDGERTON, West Willington
New London,	W. W. CONKLIN, New London.
Windham,	GERALD WALDO, Willimantic.

### Executive Committee:

P. B. WHITEHEAD,	Romford, Litchfield County.
GEO. L. ROCKWELL,	Ridgefield, Fairfield County.
WILLIAM J. MAHER,	New Haven, New Haven County.
C. M. MURPHY,	So. Manchester, Hartford County.
CHARLES R. COREY,	Cromwell, Middlesex County.
GEO. H. LORD,	Stafford, Tolland County.
E. W. BROWN,	Old Mystic, New London County.
W. G. HOLMAN,	Phoeizville, Windham County.

### Members at Large:

H. P. DEMING,	Robertsville.
PAUL P. IVES,	Guilford.
WARREN HAYDEN,	East Hartford.

### Auditors:

C. I. BALCH,	Manchester.
H. L. HAMILTON,	Ellington.

## Connecticut Poultry Association.

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### Financial Statement.

A financial statement of the Connecticut Poultry Association for the year ending February 18, 1914, made to L. H. Healey, Secretary of the State Board of Agriculture.

#### RECEIPTS.

Cash on hand, Jan. 1, 1913,	\$ 624.87
State Appropriation,	1,000.00
Cash from Sec., for memberships,	486.75
	<hr/>
	\$ 2,111.62

#### EXPENDITURES.

Institutes,	\$ 476.85
Field meeting at Storrs,	200.65
Annual meeting,	201.40
Secretary's salary,	120.00
Premiums charged to membership acc't,	76.00
Treasurer's Bond,	5.00
Attorney's expenses,	40.00
Auditor's expenses,	7.00
Director's expenses,	90.87
Printing,	161.32
	<hr/>
	\$ 1,379.09
Balance, Jan. 1, 1914.	732.53

Attest:

Geo. V. Smith, Secretary  
C. H. Brundage, Treasurer

## Connecticut Sheep Breeders' Association.

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List of Officers for the Year Ending  
December, 1914.

<b>President,</b>	<b>ALLEN B. COOK, Farmington.</b>
<b>Vice-President,</b>	<b>C. L. GOLD, West Cornwall.</b>
<b>Secretary &amp; Treasurer,</b>	<b>B. C. PATTERSON, Torrington.</b>

### Directors:

Hartford County,	<b>F. H. STADTMUELLER, Elmwood.</b>
New Haven County,	<b>D. M. MITCHELL, South Brnian.</b>
New London County,	<b>J. B. PALMER, Norwich, R. D. No. 4.</b>
Fairfield County,	<b>F. CHAMBERS, Waterbury.</b>
Tolland County,	<b>P. G. TRIPP, Rockville.</b>
Middlesex County,	<b>CHARLES E. LYMAN, Middlefield.</b>
Litchfield County,	<b>W. L. PENDECOST, Chaplinville.</b>
Windham County,	<b>C. S. HYDE, Brooklyn.</b>

## Connecticut Sheep Breeders' Association.

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### Financial Statement.

A financial statement of the Connecticut Sheep Breeder's Association for the year ending December 1, 1914, made to L. H. Healey, Secretary of the State Board of Agriculture.

#### RECEIPTS.

Cash on hand, Dec. 1, 1912,	\$ 104.74
Received for memberships,	3.00
Comptrollers orders,	311.86
	<hr/>
	\$ 419.60

#### EXPENDITURES.

Paid for bounties and premiums,	\$ 120.00
Paid for printing,	74.45
Paid for Officers expenses,	85.12
Paid for expenses for Institutes,	79.00
Cash on hand Dec. 1, 1913,	61.03
	<hr/>
	\$ 419.60

Attest:

H. L. Garrigus, Secretary.

B. C. Patterson, Treasurer

## Connecticut Bee Keepers' Association.

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List of Officers for the Year Ending,  
December 31, 1913.

President,	ELIJAH VANDERWERKEN.
Vice-President,	Rev. D. D. MARSH.
Secretary and Treasurer,	L. WAYNE ADAMS.

### Executive Committee:

H. W. COLEY, Westport,  
STEPHEN J. GRIGGEN, Bridgeport,  
LYMAN C. ROOT, Stamford.

### State Fair Committee:

A. W. YATES, Hartford,  
REV. D. D. MARSH, West Hartford,  
RICHARD H. NOBLE, East Hartford,  
F. E. CLARK, Poquonock.

## Connecticut Bee Keepers' Association.

### Financial Statement.

A financial statement of the Connecticut Bee Keepers' Association for the year ending December 31, 1913, made to L. H. Healey, Secretary of the State Board of Agriculture.

#### RECEIPTS.

State of Connecticut,	\$ 200.00
Cash on hand, Jan. 1, 1913,	17.27
Membership dues,	154.75
Connecticut Fair Association,	200.00
Entree fees,	16.05
Temporary loan,	295.50
	<hr/>
	\$ 883.57

#### EXPENDITURES.

Premium Connecticut Fair,	\$ 500.00
Loan,	200.00
Rent of hall,	10.00
Speakers,	10.00
"Gleanings in Bee Culture,"	31.50
"The Connecticut Farmer,"	15.50
Postage,	18.20
Stationery,	2.40
Printing,	24.85
Interest on loan,	10.83
Miscellaneous,	17.26
Cash on hand, Dec. 31, 1913,	43.03
	<hr/>
	\$ 883.57

Attest:

L. Wayne Adams, Secretary and Treasurer

## **The Connecticut Jersey Cattle Breeders' Association.**

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### **List of Officers for the Year 1913**

<b>President,</b>	<b>J. H. PUTNAM, Litchfield,</b>
<b>Vice-President,</b>	<b>W. B. DAYTON, Southington,</b>
<b>Secretary &amp; Treasurer,</b>	<b>E. R. DUNN, Southington.</b>

### **Directors:**

<b>J. O. PHELPS JR.,</b>	<b>Simsbury,</b>
<b>C. H. SAVAGE,</b>	<b>Storrs,</b>
<b>H. G. MILLS,</b>	<b>Bloomfield,</b>
<b>J. E. KINGSBURY,</b>	<b>Rockville,</b>
<b>F. E. DUFFY,</b>	<b>West Hartford,</b>
<b>THOMAS HOLT,</b>	<b>Southington,</b>
<b>A. E. LATIMER,</b>	<b>Southington,</b>
<b>E. R. DUNN,</b>	<b>Southington,</b>

OFFICERS OF

# The Connecticut Holstein Friesian Breeders' Club.

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<b>President,</b>	R. L. SADD, Wapping,
<b>Vice-President,</b>	C. B. POMEROY, Willimantic,
<b>Treasurer,</b>	R. E. BUELL, Wallingford,
<b>Secretary,</b>	E. H. LAKE, Newington,

**Directors:**

Hartford County,	H. S. BLAKE, New Britian,
Windham County,	R. G. WATEROUS, Willimantic,
Litchfield County,	E. D. CURTIS, Litchfield,
Middlesex County,	H. O. DANIELS, Middletown,
New Haven County,	H. IRVING TODD, Hamden,
Tolland County,	M. L. RUSSELL, Ellington,
Fairfield County,	M. C. KNAPP, Danbury,
New London County,	G. WARREN DAVIS, Norwich.



## OFFICERS OF THE GRANGES

NAME	MASTER	LECTURER	SECRETARY
<b>POMONA GRANGES.</b>			
Central Pomona, No. 1	Minor Ives, So. Meriden	Mrs. H. C. Dunham, Middletown	Miss Florence A Cowles, Plainville
Quebeaug Pomona, 2	George C. Phillips, W. Woodstock	Andrew J. Kennedy, Putnam	Frank C. Lummis, Chaplin
East Central Pomona, 3	Walter E. Price, Warehouse Point	Charles R. Risley, Silver Lane	Laura J. Brewer, Glastonbury
Mountain Co. Pomona, 4	A. F. Bidwell, Canton	F. Kirchberger, Thomaston	Horner P. Demming, Robertsville
New Haven Co. Pomona, 5	Hobart J. Brockett, Clintonville	Mrs. Alice B. Miller, Branford	Flora E. Hough, Wallingford
New London Co. Pomona, 6	B. T. Avery, Norwich	Mrs. Mabel F. Griswold, Prospect	Miss Alice A. Bishop, Norwich
Excelsior Pomona, 7	George F. Byam, Waterbury	Mrs. Mabel F. Griswold, Prospect	Mrs. Martha E. Judd, Middlebury
Sea View Pomona, 8	Edwin H. Wright, Clinton	Alex Sinclair, Stepey Depot	D. Eugene Smith, Madison
Fairfield County Pomona, 9	Mrs. Edith W. Mitchell, Newtown	Mrs. Annie B. Peet, Kent	Mrs. N. E. Blakeman, Oroonoke
Housatonic V. Pomona, 10	F. P. Johnson, Cornwall Bridge		Clifford C. Spooner, So. Kent
<b>SUBORDINATE GRANGES.</b>			
Washington, 11	Willis M. Nettleton, Wash'tn Dpt	Richard H. Schmidt, Wash'tn Dpt	Frederick J. Ford, Wash'tn Dpt
Tunxis, 12	Wm. C. Hubbard, Bloomfield	Miss Louise G. Wilson, Bloomfield	Frank M. Murdock, Bloomfield
Hope, 13	Elford F. Doolittle, Torrington	Mrs. Flora E. Leach, Litchfield	W. L. Benton, Torrington
Lebanon, 14	Otto L. Pultz, Lebanon	Mrs. Alice Spaulding, Lebanon	Mrs. Mercy E. Fuller, Lebanon
Cheshire, 15	Mark Bishop, Cheshire	Mrs. Alice Terrell, Cheshire	Miss Olive E. Storrs, Cheshire
Berlin, 16	George I. Reed, Berlin	Mrs. George B. Carter, Berlin	Louis R. Goodrich, Kensington
Union, 17	Almond J. Cutting, Southington	Henry S. Moore, Southington	Austin S. Chaffee, Milldale
Glastonbury, 18	Ernest N. Mackey, S. Glastonbury	Mrs. Wm. Carrier, Glastonbury	Miss T. Hamilton, S. Glastonbury
Suffield, 19	Geo. B. Parks, Suffield	Mrs. Laura M. Sikes, Suffield	Lewis Z. Sikes, Suffield
Meriden, 20	Wm. H. Pomeroy, Meriden	Mrs. Cora Lyman, Burnside	Mrs. M. A. Francis, Wallingford
Wapping, 21	Lucius Platt, Burnside	Mrs. Cora Lyman, Burnside	Mrs. Hattie Johnson, Wallingford
Manchester, 22	F. R. Manning, So. Manchester	Mrs. C. E. Loomis, S. Manchester	Keeney B. Loomis, S. Manchester
North Cornwall, 23	F. A. Whitcomb, Cornwall	Asa C. Borland, West Cornwall	Mrs. A. P. Brush, West Cornwall
Wallingford, 24	T. Henry Prisk, Yalesville	Norman H. Barnes, Wallingford	Louis C. Hall, Wallingford
Cawasa, 25	Burton N. Bristol, Canton Center	Mrs. N. H. Mitchell, Collinsville	A. W. Bristol Jr., Canton Center
North Haven, 26	William L. Thorpe, North Haven	Miss Bertha Brockett, N. Haven	Mrs. A. H. Carlson, N. Haven
Little River, 27	Chas. E. Burnham, Hampton	Mrs. Mary W. Jewett, Hampton	Miss E. Burchall, Hampton
East Hartford, 28	Fred M. Smith, Silver Lane	Mrs. Amy Spencer, Hartford	Robert A. Hall, East Hartford
New Canaan, 29	Samuel H. Tuttle, New Canaan	D. A. St. John, New Canaan	Miss Lorena Taylor, New Canaan
Burrill, 30	George C. Clark, New Britain	Mrs. A. W. Mason, New Britain	Mrs. F. H. Sharpe, New Britain
Senect, 31	Harrie E. Wells, S. Woodstock	George Hamilton, Putnam	I. E. Clark, Woodstock
Kromoc, 32	C. D. Whitman, New London	Mrs. Ada Wright, Waterford	Miss M. A. Chappell, Waterford
Mattabesett, 33	Eldon L. Cowell, Middletown	Mrs. G. Williams, Brooklyn	Charles T. Davis, Middletown
Brooklyn, 34	Mrs. Addie C. Hyde, Brooklyn	Miss Elizabeth A. Smith, New Britain	D. M. Hens, Brooklyn
Newington, 35	Harry A. Webster, Hartford	Mrs. Libbie Fenn, Torrington	Mrs. I. B. Francis, Newington
Harwinton, 36	Walter F. Bach, Torrington	Mrs. Willard Rowe, Ellington	Miss Ethel Bach, Torrington
Ellington, 37	A. D. Hale, Ellington	John H. Massey, Ellington	C. Thrall, Ellington
Bolton, 38	Frederick D. Finley, Bolton		Mrs. Elizabeth W. Finley, Bolton

## OFFICERS OF THE GRANGES—CONTINUED

NAME	MASTER	LECTURER	SECRETARY.
<b>Subordinate Granges—continued</b>			
Whigville, 48	Wm. Saunders, Forestville	Mrs. Ida L. Lowrey, Bristol	Mrs. Cecelia A. Wilcox, Bristol
Farmington, 49	Frank Moses, Unionville	Mrs. R. Blackmore, Farmington	Warren S. Mason, Farmington
Westfield, 50	Chas. A. Congdon, Middletown	Mrs. Ella M. Roberts, Middletown	Mrs. Mary Addiss, Middletown
Tolland, 51	Mrs. Ellen B. West, Rockville	Mrs. Elizabeth G. Stary, Tolland	H. R. Bartlett, Tolland
Vernon, 52	Wm. B. Thrall, Rockville	Mrs. Clara M. Lathrop, Rockville	Elmer L. Reed, Rockville
Plainville, 53	T. A. Lyman, Plainville	Mrs. F. S. White, Plainville	Florence A. Cowles, Plainville
Stafford, 54	Rev. I. P. Booth, Stafford	R. Albertson Booth, Stafford	Miss Mahelle E. Edson, Stafford
East Haddam, 55	Edward E. Smith, East Haddam	Miss Carrie E. Mack, E. Haddam	S. E. Williams, Colechester
Durham, 56	Roger W. Davis, Durham Center	Miss Mary Asman Durham Center	M. G. T. Neleton, Durham Ctr
West Hartford, 57	Herman J. Miller, West Hartford	Ward E. Duffly, West Hartford	Miss May B. Thompson, W. Hfd
Saybrook, 58	John S. Dickinson, Saybrook	Miss Olive N. Clark, Saybrook	Mrs. Ida H. McAllister, Saybrook
Wolf Den, 59	Herbert R. Slye, Pomfret Center	Mrs. E. J. Brown, Pomfret Center	Miss E. G. Grosvenor, Arlington
Eastford, 60	E. Roberts Atwood, New Hartford	G. C. Beckwith, New Hartford	Miss A. A. Hewins, New Hartford
Middlefield, 61	Albert F. Mousch, Middlefield	Mrs. Lena Greenbacker, Rockfall	Mrs. Bertha Burnham, Middlefield
Mansfield, 62	Rollin K. Birdsall, Mansfield D'pt	Mrs. Mary H. Rogers, Storrs	Mrs. R. L. Birdsall, Mansfield D'pt
Gunnattsset, 63	Miss Sybil P. Pettis, Thompson	Mrs. Lelia N. Babbitt, Thompson	Mrs. H. W. Bates, Thompson
Killingworth, 64	Level D. Farnellee, Clinton	Herbert C. Stevens, Clinton	Charles H. Coe, Clinton
Cromwell, 65	Edward H. King, Middletown	Mrs. Annie Barrows, Cromwell	Miss Lottie M. Sage, Cromwell
Natchaug, 66	Orrin F. Wilson, Chaplin	Mrs. Ellen M. Howard, Chaplin	Frank C. Lummis, Chaplin
Shetucket, 67	Charles A. Brenn, Scotland	Mrs. Alice Willoughby, Hampton	Miss Agnetta Phinney, Hampton
Canterbury, 68	Howard F. Hoxsie, S. Canterbury	Mrs. L. M. Frink, So. Canterbury	Levi N. Clark, So. Canterbury
Mad River, 69	Charles Pierpont, Waterbury	Miss Florence Woodworth, W'tby	Miss Bessie D. Parker, Waterbury
Indian River, 70	Harry B. Hubbard, Thomaston	Mrs. Ada E. Pratt, Plymouth	E. Nelson Canfield, Thomaston
Plymouth, 71	John B. Taylor, Woodmont	Albert N. Beard, Milford	Emerson L. Clarke, Milford
Winchester, 72	Theodore J. Apley, Winchester	Mrs. F. P. Bronson, Winchester	Mrs. J. S. Brooks, Winchester
Coventry, 73	Isaac P. Fiske, M. D. S. Coventry	Miss Hattie D. Chase, Rockville	Mrs. Edith P. Haven, S. Coventry
Andover, 74	Winthrop White, Andover	Mrs. C. R. Yeomans, Andover	Miss Addie E. Ellis, Andover
Clinton, 75	George T. Bronson, Clinton	D. Eugene Smith, Madison	Wm. H. Kelsey, 2nd, Clinton
Colchester, 76	F. H. Browning, Colchester	Mrs. E. C. Browning, Colchester	C. E. Staples, Colchester
Housatonic, 77	Burton W. Bishop, Guilford	Mrs. Annie Johnson, Oronoque	Nathan E. Wells, Stratford
Guilford, 78	G. Edg. Suydam, Guilford	Ruth Lee Baldwin, Guilford	William C. White, Guilford
Colebrook, 79	Eaton H. Rose, Branford	Mrs. Wally Vining, Winsted	Mrs. S. Ellen Northrop, Colebrook
Totoket, 80	Arthur F. Sperry, Clintonville	Mrs. Alice H. Palmer, Branford	Miss Lucetta Burr, Branford
Foxon, 81	J. H. Howland, America Un., N. Y.	Mrs. Bertha Tuttle, East Haven	Miss Velma Merrick, Branford
Webstock, 82	C. P. Cummings, Glastonbury	Herman J. Miller, S. Manchester	Mrs. F. D. Rundell, America Un., N.Y.
Hillstown, 83	Harry Sayles, Moosup	Miss Jeanette Gallup, Moosup	Miss E. V. Bancroft, Glastonbury
Ekonsk, 84	Robert M. Balch, Warrenville	Rev. B. C. Bugbee, Warrenville	Mrs. Lottie S. Gallup, Moosup
Ashford, 85	Cyrus J. Shelton, Seymour	George Richards, Seymour	Mrs. A. S. Bassett, Warrenville
Seymour, 86	Ernest S. Sherman, Stepne. D'pt.	Mrs. Minnie F. Lacey,	Emma E. Francis, Seymour
Harmony, 87			Edwin C. Shelton, Stepney Depot

## OFFICERS OF THE GRANGES—CONTINUED

NAME	MASTER	LECTURER	SECRETARY
Subordinate Granges—continued			
East Windsor, 94	E. A. Potwin, East Windsor	Roberta Brown, East Windsor	Georgiana Morse, East Windsor
Pachaug, 96	W. A. Edmond, Jewett City	Mrs. Jane Lester, Griswold	C. Frank Morgan, Griswold
Putnam, 97	J. Herbert Marsh, Putnam	Miss Beatrice Kennedy, Putnam	Miss M. C. Bradford, Putnam
Taghannuck, 100	Watson Emmons, Cornwall Bdg	Mrs. A. C. Buckley, Amenia, N. Y.	Miss Adella Thorp, Sharon
Mashapaug Lake, 101	H. R. Howard, Stafford Springs	Mrs. E. Howard, Stafford Springs	John E. Sellers, Stafford Springs
Beacon Valley, 103	Mrs. Jessie Perry, Union City	Mrs. M. P. Avery, Somers	F. M. Candee, Naugatuck
Somers, 105	Horace Sikes, Somers	Mrs. M. P. Avery, Somers	William Healey, Somers
Litchfield, 107	Wiley D. Buell, Litchfield	Mrs. J. Stoddard, Litchfield	Travis A. Ganung, Litchfield
Woodbridge, 108	Thomas F. S. Bartlett, Westville	Edward A. Hitchcock, Westville	Leroy C. Beecher, Westville
East Hampton, 109	Harold Smith, East Hampton	Mrs. Grace Goff, East Hampton	Mrs. Ola M. West, East Hampton
Preston City, 110	Arthur E. Shedd, Norwich	Mrs. Angie Bates, Norwich	Henry Bates, Norwich
Hebron, 111	Hart E. Buell, Andover	Mrs. Elva Post, Gilead	Mrs. Mary C. Gilbert, Gilead
Killingly, 112	Frank J. G. Bailey, Danielson	Miss C. Ella Day, Danielson	Miss Bertha White, Danielson
Highland, 113	Stephen A. Douglas, Danielson	H. B. Goodsell, Danielson	Mrs. Carrie Edgerly, Danielson
Wethersfield, 114	Walter M. Coe, Wethersfield	Mrs. Alice P. Rowe, Wethersfield	Miss J. L. Stevenson, Wethersfield
Rocky Hill, 115	Albert D. Griswold, Rocky Hill	Mrs. Frank Griswold, Rocky Hill	F. H. Bacon, Rocky Hill
Bristol, 116	Dwight Minor, Bristol	Sarah Carter, Bristol	Lawrence Buskey, Bristol
Unity, 117	Edward G. Burke, Deep River	Joseph P. Banning, Deep River	Mrs. M. B. LaPlace, Deep River
Beacon, 118	Robert A. Goodwin, Litchfield	Charles S. Hulme, Thomaston	Rev. G. F. Goodenough, Northfield
Morris, 119	Alva C. Brown, Thomaston	Miss Florence M. Jones, Lakeside	Albert J. Humphrey, Morris
Bethlehem, 121	E. Irving Stone, Bethlehem	Rev. C. H. Beers, Washington	Miss Etta Andrews, Bethlehem
Watertown, 122	A. N. Boisford, Watertown	B. S. Johnson, Watertown	Miss Mabel Black, Watertown
Higganum, 124	Wm. Ernest Bonioey, Higganum	Mrs. N. E. Brainerd, Higganum	Eugene O. Burr, Higganum
Hollenbeck, 125	W. I. Kellogg, Falls Village	O. H. Pendleton, Falls Village	Mrs. H. N. Wright, Falls Village
Pleasant Valley, 126	A. R. Gibson, Sr., Woodbury	Mrs. Gertrude Camp, Woodbury	Arthur N. Skilton, Woodbury
Good Will, 127	Charles T. Corbit, Glastonbury	Mrs. Esther I. Camp, Glastonbury	Harold B. Waldo, Glastonbury
Orange, 128	Arthur S. Crosby, Orange	Carleton V. Woodruff, Orange	Irving A. Andrew, Orange
Pohtatuck, 129	Wm. B. Glover, Newtown	Allison P. Smith, Newtown	Hattie M. Northrup, Newtown
Farmill River, 130	Fred Gawthorn, Shelton	Miss Ethel Beardsley, Bridgeport	Oville S. Morse, Shelton
Columbia, 131	Clayton E. Hunt, Columbia	Chas. K. Hitchcock, Columbia	Miss Amelia J. Fuller, Columbia
Witcha, 132	F. P. Johnson, Cornwall Bridge	Any M. H. Palmer, Cornwall Bge	Harold Feller, Cornwall Bridge
Greenfield Hill, 133	Clifford J. Brotherton, Southport	Edward J. Pease, Fairfield	Miss Nellie B. Wilson, Fairfield
Tumbull, 134	Emil T. Berger, Bridgeport	Leland M. Williams, Bridgeport	Mrs. Ella F. Rogers, Bridgeport
Silver Lake, 135	David Duffy, Sharon	Mrs. F. Haines, Sharon	Evelyn D. Scott, Sharon Valley
Elmer Canaan, 136	E. Fayson Allyn, East Canaan	Mrs. Janet Roger, East Canaan	Miss Clara M. Bottum, E. Canaan
Willington, 137	George V. Smith, W. Willington	Mrs. Alice T. Smith, W. Willington	Miss I. M. Sibley, Stafford Spgs
North Stonington, 138	J. E. Thompson, No. Stonington	Mrs. M. R. Avery, N. Stonington	Miss E. Frank White, N. Stonington
Middlebury, 139	Arthur F. Greene, Middlebury	Mrs. Florence Harrison, Waterbury	Albert W. Buel, Middlebury
Plainfield, 140	Nathan Exley, Plainfield	Edward Hall, Plainfield	Mrs. Evelyn A. Hall, Plainfield
Rock Rimmon, 142	John L. Rice, Beacon Falls	Mrs. M. Donovan, Beacon Falls	Frank T. Clark, Beacon Falls

## OFFICERS OF THE GRANGES—CONTINUED

NAME	MASTER	LECTURER	SECRETARY
Subordinate Granges—continued			
Goshen, 143	Frank J. Seaton, Goshen	Lewis E. Wadhams, West Goshen	Charles D. Peck, Goshen
Prospect, 144	Clifford P. Wallace, Waterbury	Charles B. Strong, Waterbury	Miss F. I. Bottomley, Naugatuck
Rippowam, 145	James H. Redell, Stamford	Mrs. Sarah Sables, Springdale	Frank V. Stevens, Jr., Stamford
Norfield, 146	Dwight Fenton, Westport	Mrs. I. Lockwood, Georgetown	Clarence Shipman, Westport
Lyme, 147	J. Warren Stark, Lyme	Mrs. Katie F. Jewett, Lyme	Mrs. Ellen H. Palmer, Lyme
Easton, 148	Clarence A. Jennings, Bridgeport	Miss H. E. Sherwood, Long Hill	Mrs. Lora H. Andrews, Long Hill
Woodstock, 150	John B. Healey, New Woodstock	Mrs. Jessie E. Marsh, Putnam	Miss Maude L. Peckham, Putnam
Enfield, 151	Francis J. Pease, Hazardville	Mrs. M. E. P. King, Hazardville	Mrs. Ellen L. Killam, Thompsonville
Cannon, 152	Nelson S. Hurlbutt, Cannon Sta	Mrs. Arthur Little, Wilton	Mrs. N. S. Hurlbutt, Cannon Sta.
Bridgewater, 153	Reuben W. Hawley, Bridgewater	Wm. M. Crittiss, New Milford	Bruce B. Randall, Bridgewater
Kent, 154	Gilbert A. Vincent, Kent	Frank H. Peet, Kent	Clifford C. Spoons, South Kent
Danbury, 156	Edward H. Ryder, Danbury	Frank H. Peet, Danbury	Miss Emma L. Bailey, Danbury
East Lyme, 157	George Maynard, East Lyme	Mrs. Rosa Richmond, Niantic	W. P. Holden, Chester
Chester, 158	E. B. Lynde, Deep River	Miss Amy Smith, Chester Village	Miss Lucy M. Reed, Salisbury
Salisbury, 159	Baldwin B. Reed, Salisbury	Hezekiah Goodwin, Falls Village	W. R. Benedict, Northville
Aspetuck, Valley, 160	George N. Abbott, New Milford	Mrs. Anna M. Hendrix, Northville	Frank N. Gardner, Norwich
Bozrah, 161	Charles B. Davis, Yantic	Mrs. Lena Bishop, Norwich	Miss Maytie Scollon, Lyme
Old Lyme, 162	Henry Muller, Lyme	Mrs. Maude Ashley, West Redding	Mrs. F. O. Sanford, Redding R'dg.
Redding, 163	Emory P. Sanford, Redding R'dg	Mrs. L. C. Meehan, West Redding	A. Reed Northrup, Ridgefield
Bethel, 164	H. Cornelius Judd, Bethel	Arthur W. Northrup, Ridgefield	Mrs. A. D. Judd, Bethel
Ridgefield, 165	Arthur H. Thomas, Ridgefield	Mrs. Grace Latimer, Colchester	Ernest L. Latimer, Colchester
Salem, 166	Herbert Houston, Colchester	Mrs. Bessie E. White, Norwich	Mrs. Josephine N. Burton, Mystic
Ledyard, 167	Mrs. Martha G. Allyn, Mystic	Miss G. W. Chapman, Old Mystic	Mrs. Eliza P. Noyes, Stonington
Stonington, 168	Fred A. Barnes, Mystic	Miss Louise Wheeler, Winsted	Miss Ruth Rowley, Riverton
Wecumasa, 170	David Taylor, Winsted	Mrs. C. M. Evans, Gaylordsville	Mrs. E. A. Haring, South Kent
Mystic, 171	Harry O. Chapman, Mystic	Mrs. Florence Johnson, Mystic	Mrs. Nellie L. Lord, Mystic
Norwich, 172	Amos B. Wheeler, Norwich	Miss Ella C. Lester, Norwich	Andrew B. Davies, Norwich
Wolcott, 173	Adelbert E. Hitchcock, Waterbury	Edith L. Cole, Bristol	Mabel L. Upson, Terryville
Torrington, 174	Walter E. Stevens, Torrington	Chas. C. Stevens, Torrington	Rev. W. E. Page, Torrington
Lake Valley, 175	Erwin C. Atchison, Torrington	Chas. C. Stevens, Torrington	Claude J. Woodin, New Milford
Groton, 176	I. E. Crouch, Groton	Mrs. Ruth B. Sweeney, Groton	Markley Allen, Groton
Haddam Neck, 177	Mrs. E. G. Clark, East Hampton	Wm. B. Lomborg, East Hampton	R. S. Bailey, East Hampton
Montville, 178	Clyde M. Beebe, Uncasville	Miss Bertha Lyon, Montville	Miss Iva Bartlett, Uncasville
Avon, 179	H. A. Sperry, Canton	L. T. Cowles, Avon	J. S. Woodford, Avon
Echo, 180	Albert E. Anthony, Mansfield Ctr	Leonard Smith, Mansfield Center	Mrs. Alice Wyman, Mansfield Ctr.
Meadow Brook, 181	Frank M. Hall, North Windham	Mrs. M. A. Colburn, N. Windham	John A. Sullivan, No. Windham
Hemlock, 182	Fredrick C. Cornwall, Portland	Mrs. Olivia Stocking, Portland	William B. Synnott, Portland
Darien, 183	Henry B. Cooke, Norton Heights	B. McL. Quackenbush, Darien	Howard S. Neilson, Darien
Franklin, 184	Frederic S. Armstrong, Yantic	Mrs. Eliza E. Holton, N. Franklin	Luther Holton, North Franklin















